

Docket No. 16-2438

UNITED STATES COURT OF APPEALS FOR THE FEDERAL CIRCUIT

VIDEOSHARE, LLC, a Delaware limited liability company,

Plaintiff – Appellant

v.

GOOGLE, INC., a Delaware corporation,
YOUTUBE, LLC, a Delaware limited liability company,

Defendants – Appellees

Appeal from the United States District Court for the District of Delaware in
Case No. 1:13-cv-00990-GMS, Judge Gregory M. Sleet

**PLAINTIFF-APPELLANT VIDEOSHARE LLC'S
CORRECTED OPENING BRIEF**

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Certificate of Interest

Counsel for Plaintiff-Appellant VideoShare, LLC certifies the following:

1. The full name of every party or amicus represented by me is:

VideoShare, LLC.

2. The name of the real party in interest (if the party named in the caption is not the real party in interest) represented by me is:

None.

3. All parent corporations and any publicly held companies that own 10 percent or more of the stock of the party or amicus curiae represented by me are:

None.

4. The names of all law firms and the partners or associates that appeared for the party or amicus now represented by me in the trial court or agency or are expected to appear in this court are:

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November 2, 2016

Respectfully submitted,

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Statement of related cases.

There are no related cases pending.

Jurisdictional statement.

This is an appeal in a patent infringement case filed in the District of Delaware. The district court had original jurisdiction under 28 U.S.C. § 1338(a).

The district court granted judgment on the pleadings that each asserted claim of U.S. Patents 8,438,608 and 8,464,302 is not patent eligible under section 101 and entered judgment of invalidity on August 2, 2016. Appx1. VideoShare filed a notice of appeal on August 5, 2016.

This Court has jurisdiction under 28 U.S.C. §§ 1292(c) and 1295(a)(1).

Statement of the issues.

1. Mayo step one: abstract idea. Patent claims directed to automating some abstract process (e.g. a business practice) are directed to an abstract idea; claims directed to improving an existing technology using a particular, improved way of performing a technological process are patent eligible. The VideoShare claims are directed to improving an existing technology (transmitting video from user to user) using a particular, improved way of transmitting video from one user to another over a computer network. Are the VideoShare claims patent eligible?

2. Mayo step two: inventive concept. A claim is patent eligible if it recites an inventive concept—i.e., an unconventional technical step or element. The VideoShare claims recite unconventional technical steps for transmitting video from one user to another, including:

- preparing the video for transmission at a receiving computer, rather than at the transmitting user's computer;
- streaming rather than requiring download; and
- using an embedded thumbnail image rather than an alphanumeric string to identify the video on a web page.

Do the VideoShare claims recite an inventive concept?

Statement of the case.

This is an appeal from a judgment of patent-ineligibility in a patent infringement case.

VideoShare filed this case in the District of Delaware. It alleged that Defendants Google and YouTube infringe its ‘608 and ‘302 patents. Appx22-29 (Second Amended Complaint).

The parties agreed to certain claim constructions (Appx254) and the district court issued a *Markman* ruling on January 6, 2016, construing disputed terms. Appx255-260.

Defendants filed a motion for judgment on the pleadings that the claims are not patent eligible under section 101. Appx107-109.

Fact discovery was completed on March 3, 2016, and the submission of expert reports and expert discovery were completed on June 16, 2016. Defendants did not move for summary judgment—or even seek permission to move for summary judgment—on their section 101 defense. Appx261-267.

On August 2, 2016, the district court granted Defendants’ motion for judgment on the pleadings and entered a judgment that both patents are invalid. Appx1.

Statement of facts.

1. Prior art methods for transmitting video from user to user over computer networks.

In 1999, lead inventor Gad Ligerant started a company named VideoShare. VideoShare was focused on improving how video was transmitted from user to user over networks such as the Internet. Appx48 ('608 patent), 1:50-60.¹

At the time of the invention, to share video with friends and family over the Internet, users had to use the conventional mechanisms for transmitting computer files. The first option was to send the video “as a file attachment to an electronic mail (e-mail) message.” Appx48, 1:25-46. The second was “[a] video can be posted to a World Wide Web page” and then downloaded by a user. *Id.*, 1:38.

The e-mail and posting methods followed the conventional wisdom at the time of the invention in three ways.

First, the conventional methods prepared the video for transmission at the transmitting user’s computer. *See id.*, 1:30-35 (emailing a video “typically requires multiple computer programs to perform all of the necessary functions, including an e-mail application program to send or receive the video in computer file form”); *id.* 1:39-44 (“software packages must exist and be used to prepare the video, and transmit it over the Web”). This was sensible because video files in

¹ The VideoShare patents have different specifications but with significant overlap between them. All of the material in the '608 specification cited to or relied upon in this brief is also found in the '302 specification.

their original uncompressed format were very large and thus unsuitable for transmission over the slow dial-up connections prevalent at the time. Preparing them for transmission at the user's computer minimized the amount of data that needed to be transmitted over the slow dial-up connections. In addition, it avoided the need for the user's computer to be connected to the Internet while the video was being prepared, and gave the user control over the presentation of the video (for example how it was identified).

Second, although streaming video format existed and was considered useful for content providers at the time of the invention, neither of the conventional methods for transmitting video from user to user made use of streaming video. Appx48, 1:25-37 (email); 1:38-46 (web posting). Streaming would have required an infrastructure not available to individual users. Moreover, a streaming video could be received only by a user that had an active and sufficiently fast Internet connection.

Third, the conventional methods identified the video (within the email or on the web page) just like any other file—using “an alphanumeric string such as a typical string used to identify a file.” Appx58, 22:60-63. It was sensible to use alphanumeric strings as identifiers because they are searchable, are small in file size, do not take up a lot of space on a screen, can be automatically generated by a computer, and it is easy to ensure that they are unique.

Following conventional wisdom, the email and posting methods each required:

- preparing the video for transmission at the transmitting user's computer;
- transmitting the full video before the receiving user could play it; and
- identifying the video using an alphanumeric identifier.

These conventional methods for transmitting video from user to user were widely used, but they suffered from a number of technical problems.

Although playback delay was non-existent or insignificant for other file types, video files tended to be large and resulted in long playback delays because “the entire video file must be transmitted and received before the receiver can view the video.” Appx48, 1:27-28. Thus, transmitting video using conventional methods resulted in long playback delays. Appx48, 1:25-46.

Moreover, the posting method required the transmitting user to have significant technological infrastructure available: “a server computer connected to the Web must be used to host the Web site, and software packages must exist and be used to prepare the video, and transmit it over the Web using the File Transfer Protocol (FTP or ftp) or the HyperText Transfer Protocol (HTTP or http).” Appx48, 1:38-46. Moreover, “a detailed knowledge of various computer communication protocols” was required. *Id.*

Similarly, the e-mail attachment method required the user to have “multiple computer programs to perform all the necessary functions, including an e-mail application program to send or receive the video in computer file form, and a second program to play or display the video from the received file attachment.” Appx48, 1:30-35. It also made it difficult to “share or forward the received video” over a computer network because the size of the video could easily exceed the receiving user’s email size quota, and the receiving user would have to either re-transmit the entire video (by emailing it to others) or post the video to his or her own web page if he or she did receive the video. Appx48, 1:35-37. This created special problems for video files, which have large file sizes.

Finally, although alphanumeric identifiers appeared to be the most effective and efficient way to identify files, they were in fact often “uninformative as to the content or subject matter.” Appx58, 22:60-63. This created particular challenges for video files. To identify a received video, the receiving user would first have to download a large file, and then watch at least a portion of it.

2. The VideoShare invention.

To overcome the problems with existing processes for transmitting video from user to user, Mr. Liwerant and his co-inventors developed a new approach. They created a platform called “VideoShare” that included a “receiving computer” (e.g. a server). Appx62 (‘608 patent), claim 1; Appx48, 1:50-2:9. The receiving

computer would receive video transmitted from a user, and would then prepare the video for further transmission to users by converting it to streaming video format, generating a thumbnail identifier for the video, and embedding that thumbnail identifier into a web page at www.videoshare.com. This web page could then be used to stream the video to one or more users. *See, e.g.*, Appx48 ('608 patent), 1:50-2:9 (summarizing one preferred embodiment).

The new VideoShare approach used certain familiar components—such as servers, web pages, conversion techniques, networks. But it combined them in unconventional and counter-intuitive ways. It created a dedicated infrastructure for video, instead of using the existing solutions used for other file types. It called for preparing video files for transmission on a receiving computer or server, rather than on the transmitting user's computer.² It called for distributing user video in streaming format, as opposed to requiring complete transmission before

² Appx48 ('608 patent), 1:50-60, 2:10-28, 2:55-57; Appx49, 3:25-33, 4:12-38; Appx50, 5:54-6:9; Appx55, 15:36-40, 16:29-49; Appx62, claim 1; Appx 95 ('302 patent), claim 1.

playback.³ And it identified videos using thumbnails rather than alphanumeric strings.⁴

As explained in greater detail in the argument below, each of these features was non-conventional and contrary to conventional wisdom. But by combining them, VideoShare solved each of the problems with prior art methods and improved technology for transmitting video from one user to another.

3. The VideoShare patents.

Mr. Liverant and his co-inventors applied for patents to protect their improved way of transmitting video from user to user over computer networks. Appx31; Appx65. The patents in this case stem from those applications. *Id.*

Claim 1 of the ‘608 patent is representative of the independent claims of that patent and of claims 2 and 3 of the ‘302 patent. It recites:

A method of streaming a video to users over a network, the method comprising the steps of:

[a] receiving, by a receiving computer via a web page, a video file sent by a user on a second computer on a network;

³ Appx31 (‘608 patent), Title (“Sharing a streaming video”); Appx40, Fig. 6A; Appx48, 2:10-28; Appx49, 3:25-33, 3:58-60; Appx50, 5:54-6:9; Appx52-53, 10:52-11:5; Appx54, 14:22-46; Appx55, 15:10-21; Appx62, claim 1 (b1), (b3); Appx95 (‘302 patent), claim 1.

⁴ Appx40-42(‘608 patent), Fig. 6A-C; Appx48, 1:67-2:3; Appx50, 5:14-18; Appx51, 7:61-8:2; Appx58, 21:39-41; Appx58-59, 22:51-23:3; Appx59, 24:46-49; Appx60, 26:27-40; Appx62, claim 1 (b2), (b3); Appx95 (‘302 patent), claims 2, 3.

[b] executing, by the receiving computer, in response to receiving the video file, an automated function automatically performing each of:

- (b1) converting the video file into a streaming video file comprising a streaming video format, the video file being converted independent from receiving a command to perform such conversion from the user;
- (b2) generating an identification tag comprising a video frame image representing a subject matter of the streaming video file and identifying the streaming video file; and
- (b3) embedding the identification tag comprising the video frame image into a web page for serving the streaming video file to one or more users on one or more computers on the network.

Appx62 ('608 patent), claim 1; *see* Appx95 ('302 patent), claims 2-3.

Claim 1 of the '302 patent is representative of independent claims of that patent. It recites a similar process to claim 1 of the '608 patent but lacks the "identification tag comprising a video frame image" limitation. Appx95 ('302 patent), claim 1.

4. The plaintiff VideoShare.

The plaintiff VideoShare LLC is the owner of the VideoShare patents. Mr. Liwerant is VideoShare LLC's President and owns 100 percent of the company.

Summary of the argument.

1. ***Mayo step one: the claims are directed to a specific improvement in technology, not an abstract idea.***

Claims directed to a specific improvement in technology—that is, ones that purport to improve technology by reciting a particular, improved way of performing a technological process—are patent eligible. Claims that use computers or other technological components merely to automate a business practice, organizational method, or other non-technological process are directed to an abstract idea.

The VideoShare claims purport to improve user-to-user video transmission technology. They do so by reciting a particular, improved way to transmit video from one user to another over a computer network. Accordingly, they are directed to a specific improvement in technology.

At the time of the invention, there were two conventional ways to share a video (that is, to transmit a video from user to user) over a computer network:

- a video could be sent as a file attachment to an e-mail message; or
- a video could be posted to a web page and then downloaded.

These existing techniques applied conventional wisdom and were widely accepted, yet had a number of flaws, as explained in the patent specifications.

The VideoShare claims are directed to solving problems with these existing methods for sharing video over computer networks by reciting a particular,

improved way to transmit video from one user to another: a receiving computer that prepares a video from a user for streaming to another user over a computer network. To do this, the receiving computer:

- receives a video from a user via a web page;
- converts the video into streaming video format automatically;
- generates a (thumbnail) identifier; and
- embeds the identifier into a web page for streaming the video to a user over a computer network.

Appx62 ('608 patent), claim 1. This solved each of the problems with existing methods of transmitting video from one user to another.

Thus, the VideoShare claims purport to improve technology—user-to-user video transmission technology. And they do so by reciting a particular, improved way to carry out an existing technological process—a receiving computer that prepares a video from a user for streaming to another user over a computer network. Accordingly, they are directed to a specific improvement in technology. They are eligible at *Mayo* step one.

2. *Mayo* step two: the claims contain an inventive concept—they recite non-conventional technical steps that improve user-to-user video transmission technology.

A claim contains an inventive concept if it recites technical steps or elements that go beyond well-understood, routine, conventional activity and improve an

existing technological process or apparatus. What is purportedly inventive, however, cannot be merely the generic automation of an abstract concept such as a business practice, organizational method, or mental process.

An inventive concept may be found in a claim step or element composed entirely of conventional components, so long as the recited arrangement of those components is an unconventional technical step or element. Therefore, the step two analysis must examine the particular arrangement of components recited in the claims to see if the resulting claim steps or elements are unconventional.

The VideoShare claims require the following non-conventional technical steps:

- receiving a video file at a receiving computer and using the receiving computer—as opposed to the transmitting user’s computer—to prepare it for transmission;
- converting a sending user’s video file to streaming video format and serving it in that format to a receiving user; and
- generating thumbnail identifiers and embedding them in a web page.

Each of these steps uses conventional components—video files, servers, conversion, and so forth. But each recites a technical step that was not conventional and, in fact, was contrary to conventional wisdom.

For example, at the time of the invention, it was conventional to prepare a user's video for transmission to another user by using software installed on the transmitting user's computer. Thus, the recited step of preparing a video for transmission at a receiving computer rather than at the transmitting user's computer was not well-understood, routine, conventional activity. It was an unconventional technical step, one that went against conventional wisdom. The other steps were similarly unconventional.

Thus, the individual technical steps that the claims recite are unconventional; and the entire technical process the claims recite—which combines multiple unconventional steps—is all the more unconventional.

Moreover, the inventive aspect of the steps that the claims recite is not the generic automation of a business method or other non-technological process. Rather, it is the technical steps themselves that are unconventional. And the claims take advantage of these technical steps to solve technical problems with existing processes for transmitting video from user to user—not to automate some non-technical process.

Thus, the VideoShare claims include technical steps that individually and collectively go beyond well-understood, routine, conventional activity and improve an existing technological process for transmitting video from user to user. They contain an inventive concept.

Standard of review.

This Court reviews de novo a district court's determination of patent eligibility under section 101. *DDR Holdings, LLC v. Hotels.com, L.P.*, 773 F.3d 1245, 1255 (Fed. Cir. 2014). While the ultimate determination of patent eligibility is a question of law, if the determination requires resolution of any underlying factual disputes, those questions are for the trier of fact. *Bascom Glob. Internet Servs., Inc. v. AT&T Mobility LLC*, 827 F.3d 1341, 1347 (Fed. Cir. 2016) (“BASCOM has alleged that the claims of the ‘606 patent contain an ‘inventive concept’ in their ordered combination of limitations sufficient to satisfy the second step of the Supreme Court’s *Alice* test. We find nothing in the intrinsic record to refute that allegation as a matter of law. We therefore *vacate* the district court’s order dismissing BASCOM’s complaint, and *remand* for further proceedings.”); *cf. Uniloc USA, Inc. v. Microsoft Corp.*, 632 F.3d 1292, 1323 (Fed. Cir. 2011) (“Though obviousness is a question of law, this court gives the jury its usual deference on the underlying factual questions”).

This Court reviews a decision granting judgment on the pleadings under the law of the regional circuit. *Bascom*, 827 F.3d at 1347.

In the Third Circuit, review of a judgment on the pleadings is plenary. *Mele v. Fed. Reserve Bank of N.Y.*, 359 F.3d 251, 253 (3d Cir. 2004), *as amended* (Mar.

8, 2004). The Court “must accept the allegations in the complaint as true, and draw all reasonable factual inferences in favor of the plaintiff,” VideoShare. *Turbe v. Gov’t of Virgin Islands*, 938 F.2d 427, 428 (3d Cir. 1991); *Mele*, 359 F.3d 253; *Bascom*, 827 F.3d at 1350 (“Thus, construed in favor of the nonmovant—BASCOM—the claims are ‘more than a drafting effort designed to monopolize the [abstract idea].’”) (internal citations omitted). The Court must “view the facts in the complaint and any reasonable inferences that can be drawn from them in favor of the non-moving party [VideoShare]” and “affirm the dismissal only if no relief could be granted under any set of facts that could be proved.” *Wolf v. Ashcroft*, 297 F.3d 305, 307 (3d Cir. 2002).

Argument.

- I. Mayo step one: The VideoShare claims are patent eligible because they are directed to a specific improvement in user-to-user video transmission technology, not to an abstract idea.**
 - A. A claim directed to a specific improvement in technology—that is, one that purports to improve technology by reciting a particular, improved way of performing a technological process—is patent eligible; one that merely automates a business practice, organizational method, or other abstract process is directed to an abstract idea.**

A claim that is directed to a specific improvement in technology is patent eligible. *Enfish, LLC v. Microsoft Corp.*, 822 F.3d 1327, 1336 (Fed. Cir. 2016) (holding that “the claims at issue in this appeal are not directed to an abstract idea within the meaning of *Alice*” because “they are directed to a specific improvement to the way computers operate”); *McRO, Inc. v. Bandai Namco Games Am. Inc.*, No. 2015-1080, 2016 WL 4896481, at *8 (Fed. Cir. Sept. 13, 2016) (holding that the claim was patent eligible at *Mayo* step one because it “is focused on a specific asserted improvement in computer animation”); *Affinity Labs of Texas, LLC v. DIRECTV, LLC*, No. 2015-1845, 2016 WL 5335501, at *6 (Fed. Cir. Sept. 23, 2016) (distinguishing ineligible claims at issue from ones that had been found eligible because “[t]he patent in this case is not directed to the solution of a ‘technological problem,’ nor is it directed to an improvement in computer or network functionality” (internal citation omitted)).

A claim is directed to a specific improvement in technology if it purports to improve technology by reciting a particular, improved way of performing an existing technological process. That is, claims directed to a specific improvement in technology “purport to improve the functioning of the computer [or to] effect an improvement in any other technology or technical field” by “improv[ing] an existing technological process.” *Alice Corporation Pty. Ltd. v. CLS Bank International et al.*, 134 S. Ct. 2347, 2358-59 (2014). For example, the claims in *Enfish* were directed to a specific improvement in technology because they purported to improve database technology by using a particular, improved way of linking data that “allows for faster searching,” “more effective storage,” and “more flexibility in configuring the database.” *Enfish*, 822 F.3d at 1333. Likewise, “the claims in *Diehr* were patent eligible because they improved an existing technological process” by providing a particular, improved way of curing rubber. *Alice Corp. Pty. v. CLS Bank Int'l*, 134 S. Ct. 2347, 2358 (2014).

By contrast, a claim is not directed to a specific improvement in technology if it merely uses computers or other technological components to automate or to render more efficient a non-technological process that exists apart from those computers or other technological components—for example, a business practice, organizational method, or mental process. Said differently, a claim is not directed to a specific improvement in technology if it “merely implement[s] an old practice

in a new environment.” *FairWarning IP, LLC v. Iatric Sys., Inc.*, No. 2015-1985, 2016 WL 5899185, at *4 (Fed. Cir. Oct. 11, 2016). Such a claim does not purport to improve technology, but instead purports to improve an abstract (non-technological) process by using technological components (e.g. computers) “as a tool” to carry out the non-technological process more efficiently. *Enfish*, 822 F.3d at 1336; *FairWarning*, 2016 WL 5899185, at *4 (claim not patent eligible because “the focus of the claims is not on . . . an improvement in computers as tools, but on certain independently abstract ideas that use computers as tools” (internal citation omitted)). Accordingly, such a claim is not directed to any improvement in technology but is instead directed to an improvement in the non-technological, abstract process it automates.

For example, the claims in *Alice* recited carrying out the steps of “intermediated settlement”—an abstract financial practice—using a computer. *Alice Corp. Pty. v. CLS Bank Int’l*, 134 S. Ct. 2347, 2352 (2014). Although the claims recited computer components, they did not purport to improve any technological process. They purported to improve the non-technological process of “intermediated settlement” by using computers as tools to carry out financial transactions—which were previously carried out without a computer—more quickly and efficiently. *Alice*, 134 S. Ct. at 2359 (“The method claims do not, for example, purport to improve the functioning of the computer itself . . . Nor do they

effect an improvement in any other technology or technical field”). Because the claims did not purport to improve any technological process, but instead used computer technology to improve the non-technological process of “intermediated settlement,” they were not directed to a specific improvement in technology and were therefore not patent eligible. *Id.*

Thus, to determine whether the VideoShare claims are patent eligible at *Mayo* step one, the Court must determine: Do the VideoShare claims purport to improve technology by providing a particular, improved way of carrying out an existing technological process? Or do they merely use computers as tools to automate a non-technological process?

B. Because the VideoShare claims improved existing video transmission technology using a particular, improved way to transmit video from user to user, they are directed to a specific improvement in technology.

1. The VideoShare claims improve existing video transmission technology by providing a particular, improved way to transmit video from user to user over a computer network that solved the problems with existing methods.

The VideoShare specifications demonstrate that:

- the claims purport to improve technology: user-to-user video transmission technology,

- using a particular, improved way to perform an existing technological process: a receiving computer that prepares video from a user for streaming to a user over a computer network.⁵

The specifications explain that, at the time of the invention, there were two conventional technological ways to transmit video from user to user over a computer network such as the Internet. The first was “[a] video can be sent over a computer network as a file attachment to an electronic mail (e-mail) message.” Appx48 (‘608 patent), 1:25-56. The second was “[a] video can be posted to a World Wide Web page” and then downloaded. *Id.* In either case, the video was identified (within the email or on the web page) using “an alphanumeric string such as a typical string used to identify a file by its drive, directory (and one or more subdirectories) and filename.” Appx58 (‘608 patent), 22:51-63.

The specifications explain that these existing solutions had several technical problems.

Problem 1. Long delays in playback because “the entire video file must be transmitted and received before the receiver can view the video” and so “the time

⁵ The specification is a useful guide to determine whether a claim is directed to a specific improvement in technology. *Enfish, LLC v. Microsoft Corp.*, 822 F.3d 1327, 1337 (Fed. Cir. 2016) (“our conclusion that the claims are directed to an improvement of an existing technology is bolstered by the specification’s teachings that the claimed invention achieves other benefits over conventional databases”).

required to complete such transmissions can be longer than the actual playing time of the video.” Appx48 (‘608 patent), 1:27-28.

Problem 2. Users needed “multiple computer programs to perform all the necessary functions, including an e-mail application program to send or receive the video in computer file form, and a second program to play or display the video from the received file attachment.” Appx48 (‘608 patent) 1:30-35.

Problem 3. Technical complexity associated with posting video files: “a server computer connected to the Web must be used to host the Web site, and software packages must exist and be used to prepare the video, and transmit it over the Web using the File Transfer Protocol (FTP or ftp) or the HyperText Transfer Protocol (HTTP or http). To implement this type of video posting, at least a detailed knowledge of various computer communication protocols is required.” Appx48 (‘608 patent), 1:38-46.

Problem 4. It was difficult to “share or forward the received video” because the size of a video attachment could easily exceed email size quotas, and because forwarding required the recipient to re-transmit the entire video. Appx48 (‘608 patent), 1:35-37.

Problem 5. The “alphanumeric identifiers [conventionally used to identify files on web pages] may be totally uninformative as to the content or subject matter contained in the identified file or video segment.” Appx58 (‘608 patent), 22:60-63.

To solve these problems, the VideoShare claims provide a particular, improved way of transmitting video from user to user. In general, the solution is a receiving computer that receives video transmitted by a user and prepares it for streaming to a user over a computer network. More specifically, the solution is a receiving computer that receives a video from a user's computer via a web page, converts the video into streaming video format, generates an identifier (and for certain claims, a thumbnail identifier), and then embeds the identifier into a web page for streaming the video to a user over the computer network. *E.g.*, Appx62 ('608 patent) claim 1; Appx95 ('302 patent), claim 1.

This solution solved each of the problems with prior art methods of transmitting video from user to user.

It solved Problem 1 by converting received video files to streaming video format at a receiving computer or server⁶ and sharing them using “a web page for serving the streaming video file,” thereby eliminating the long playback delays associated with prior methods.

It eliminated Problem 2—the need for video senders and recipients to have multiple computer programs to send, process, and play video files—by (a) receiving video files from senders by way of a web page and performing all

⁶ The claimed “receiving computer” is a computer “other than the second computer,” *i.e.*, other than the user’s computer. Appx256 (*Markman Order*); Appx254 (Agreed constructions). The ‘302 patent claims call the receiving computer the “first computer.” Appx95 ('302 patent), claim 1; Appx256.

necessary processing at a receiving computer, and (b) delivering the video files to recipients using identifiers embedded in a web page. Appx48 ('608 patent), 1:30-35. These features also avoided Problem 3, the difficulty of posting videos, because they avoided the technical complexity of the existing systems. Appx48, 1:38-46.

The VideoShare solution also solved Problem 4—the difficulties in sharing and forwarding videos—because it allowed users to forward and share videos by transmitting an identifier of the video or a link to the web page for serving the video to recipients (instead of having to transmit the video itself). Appx48, 1:25-28.

Finally, the claims that require a thumbnail identifier embedded in a web page (the claims of the '608 patent and claims 2 and 3 of the '302 patent) also solved Problem 5—that conventional identifiers were “uninformative as to the content or subject matter” Appx58, 22:59-6—by identifying the video on the web page using embedded thumbnail images rather than alphanumeric identifiers, i.e. “a video frame image representing a subject matter of the streaming video file.” Appx62 ('608 patent), claim 1 (b2); Appx95 ('302 patent), claim 2, claim 3.

By solving each of these problems with existing methods, the claimed solution improved technology for transmitting video from user to user over a computer network. And it did so by providing a particular, improved way of

transmitting a video from user to user; a receiving computer that prepares video from a user for streaming to another user over a computer network, and more specifically a receiving computer that receives a video from a user via a web page, converts the video into streaming video format, generates a (thumbnail) identifier, and then embeds the identifier into a web page for streaming the video to a user over a computer network.

2. Because the VideoShare claims improve existing video transmission technology using a particular, improved way of transmitting video from user to user, they are directed to a specific improvement in technology.

The VideoShare claims are directed to a specific improvement in technology, and not to automating some pre-existing, non-technological process. The claims can be broadly summarized as directed to a receiving computer that prepares a video from a user for streaming to another user over a computer network. They can also be summarized more specifically as directed to a receiving computer that receives a video from a user via a web page, converts the video into streaming video format, generates a (thumbnail) identifier, and then embeds the identifier into a web page for streaming the video to a user over a computer network. Even the district court's description of what the claims are directed to—"preparing a video file in streaming video format for sharing over a computer

network” Appx10—states an improved way of carrying out a technological process, not a pre-existing non-technological process.⁷

While a claim summary may have more or less detail, any fair summary of the VideoShare claims shows that they are not directed to a non-technological process that existed apart from computers. They are directed to improved ways of carrying out an existing technological process, one that was previously performed using computers and computer network technology. The claimed solution (transmitting the video file to a receiving computer that would convert to streaming format and generate and embed a thumbnail identifier) improved user-to-user video transmission. The claims in *Enfish* were patent eligible at *Mayo* step one because they were directed at improving database technology with a method that “allows for faster searching,” “more effective storage,” and “more flexibility in configuring the database.” *Enfish, LLC v. Microsoft Corp.*, 822 F.3d 1327, 1333 (Fed. Cir. 2016). Similarly, the VideoShare claims are patent eligible at step one because they were directed at improving user-to-user video transmission by eliminating playback delays, removing the need for multiple computer programs

⁷ Although the district court’s summary captures that the claims recite a way of streaming video from user to user (“sharing”) over a computer network, it does not convey that the process of preparing the video for transmission is not done at the sending user’s computer, but instead is performed at a receiving computer (server side). *See, e.g.,* Appx62 (‘608 patent) claim 1(b) (“executing, by the receiving computer”).

and posting technology, making forwarding easier and faster, and improving identification.

There is no abstract non-technological process (i.e. process that existed apart from video transmission over computer networks) that the VideoShare claims can be fairly described as implementing. This is not a case where the patent specification identifies a business practice or financial concept and then touts the advantages of performing that practice or concept using computer, networking, or smartphone technology. Instead, the invention “Background” in the specification describes existing techniques for sending video over a computer network and the resulting technical problems. Appx48 (‘608 patent), 1:25-46. And the invention “Summary” states that a user can “upload automatically a video segment over a network onto a server” so that the video “can then be streamed over the network ... to a destination computer.” *Id.* 1: 50-60.

By contrast, in cases with ineligible claims, this Court has readily identified pre-existing non-technological processes that the claims implemented. *Affinity Labs of Texas, LLC v. DIRECTV, LLC*, No. 2015-1845, 2016 WL 5335501, at *3 (Fed. Cir. Sept. 23, 2016) (“conveying regional content to out-of-region recipients”); *Elec. Power Grp., LLC v. Alstom S.A.*, 830 F.3d 1350, 1353 (Fed. Cir. 2016) (mental process of “collecting information, analyzing it, and displaying certain results of the collection and analysis”); *In re TLI Commc’ns LLC Patent*

Litig., 823 F.3d 607, 611 (Fed. Cir. 2016) (“classifying an image and storing the image based on its classification”); *In re Smith*, 815 F.3d 816, 818 (Fed. Cir. 2016) (“rules for conducting a wagering game”); *Versata Dev. Grp., Inc. v. SAP Am., Inc.*, 793 F.3d 1306, 1333 (Fed. Cir. 2015) (“determining a price, using organizational and product group hierarchies”); *Intellectual Ventures I LLC v. Capital One Bank (USA)*, 792 F.3d 1363, 1367 (Fed. Cir. 2015) (“tracking financial transactions to determine whether they exceed a pre-set spending limit (i.e., budgeting)”); *OIP Techs., Inc. v. Amazon.com, Inc.*, 788 F.3d 1359, 1362 (Fed. Cir. 2015) (“offer-based price optimization”).

In sum, the VideoShare claims purport to improve an existing technological process—they purport to solve problems with existing methods for transmitting video from user to user over a computer network. And the claims improve this technological process by reciting a particular, improved way to carry it out—a receiving computer that executes a particular server-side process. The claims do not purport to improve some non-technological process by merely automating it with a computer. Thus, they are patent eligible at *Mayo* step one.

3. **Google’s summary of what the claims are directed to—“translating and sharing content”—does not account for what the VideoShare claims purport to improve and, therefore, cannot be used to conduct a *Mayo* step one analysis.**

Google argued below that the VideoShare claims are directed to an abstract idea at *Mayo* step one because (1) they are directed to “translating and sharing content” and (2) this is an “un-patentable abstract idea” that exists apart from technology and “has been practiced in various forms throughout history.” Appx120. This argument fails because “translating and sharing content” does not accurately capture what the VideoShare claims are directed to and thus cannot be used to conduct a valid *Mayo* step one analysis. *Enfish, LLC v. Microsoft Corp.*, 822 F.3d 1327, 1336 (Fed. Cir. 2016) (rejecting step one analysis because it was based on an inaccurate summary of the claim); *McRO, Inc. v. Bandai Namco Games Am. Inc.*, No. 2015-1080, 2016 WL 4896481, at *7 (Fed. Cir. Sept. 13, 2016) (same); *Rapid Litig. Mgmt. Ltd. v. CellzDirect, Inc.*, 827 F.3d 1042, 1047 (Fed. Cir. 2016) (same).

To accurately summarize what a claim is directed to, “[i]t is not enough to merely identify a patent-ineligible concept underlying the claim; we must determine whether that patent-ineligible concept is what the claim is ‘directed to.’” *Rapid*, 827 F.3d at 1050. “The ‘directed to’ inquiry, therefore, cannot simply ask whether the claims *involve* a patent-ineligible concept, because essentially every routinely patent eligible claim involving physical products and actions *involves* a law of nature and/or natural phenomenon.” *Enfish*, 822 F.3d at 1335 (emphasis in original).

To accurately summarize what a claim is “directed to,” the summary of a claim must capture what the claim purports to improve, because *Mayo* step one is an analysis of what the claim purports to improve. As discussed above, *Mayo* step one asks: does the claim purport to improve an existing technological process or, instead, does it purport to take an abstract (i.e. non-technological) process and apply it to a given technological environment? *Affinity Labs of Texas, LLC v. DIRECTV, LLC*, No. 2015-1845, 2016 WL 5335501, at *6 (Fed. Cir. Sept. 23, 2016) (“the patent in this case is not directed to the solution of a ‘technological problem,’ nor is it directed to an improvement in computer or network functionality”); *McRO*, 2016 WL 4896481, at *8 (claim “is focused on a specific asserted improvement in computer animation”); *Enfish*, 822 F.3d at 1336 (the claims “are directed to a specific improvement to the way computers operate”); *DDR Holdings, LLC v. Hotels.com, L.P.*, 773 F.3d 1245, 1258 (Fed. Cir. 2014) (claims “do not broadly and generically claim ‘use of the Internet’ to perform an abstract business practice”). Consequently, if a claim summary were to oversimplify a claim to the point that it omitted what the claim purports to improve, the summary would omit the very thing that the *Mayo* step one inquiry turns on, and it would be impossible to determine based on that summary whether the claim was directed to an abstract idea.

Furthermore, this Court has sometimes required the *Mayo* step one summary to account not only for what the claim improves, but also for “the specific, claimed features” that “allow for the improvement realized by the invention.” *McRO, Inc. v. Bandai Namco Games Am. Inc.*, No. 2015-1080, 2016 WL 4896481, at *7 (Fed. Cir. Sept. 13, 2016); *Enfish*, 822 F.3d at 1337-38 (holding that “the claims are not simply directed to any form of storing tabular data, but instead are specifically directed to a *self-referential* table for a computer database” because the self-referential component is what allowed for the improvement over prior art database technology).

Google’s proposed summary—“translating and sharing content”—ignores the record facts establishing that the claims addressed a particular set of problems with an existing technology. It does not capture what the claims purported to improve. As a result, someone reading Google’s summary would have no idea that the claims improved upon existing methods of transmitting video from user to user over a computer network. Furthermore, Google’s summary does not incorporate any of the “specific, claimed features” that “allow for the improvement realized by the invention.” *McRO*, 2016 WL 4896481, at *7. Someone reading Google’s summary would have no idea that what allowed for the claimed improvement was a receiving computer that performed a specific process to prepare the video from a user for streaming to another over a computer network.

Thus, “translating and sharing content” fails to capture what the claims are directed to. It cannot form the basis of a valid *Mayo* step one analysis.

C. The district court erred by concluding that the VideoShare claims are directed to an abstract idea.

1. **The district court erred by concluding that the VideoShare claims do not improve technology because the claims solved several technical problems with existing video transmission technology identified in the specifications.**

Attempting to draw a parallel to the claims in *In re TLI Commc’ns LLC Patent Litig.*, 823 F.3d 607, 612 (Fed. Cir. 2016), the district court asserted that the VideoShare claims do not result in an improvement in technology because “VideoShare was not confronted with the problem of how to combine conversion technology and the Internet, or how to associate identification tags with video files.” Appx13. That it is possible to identify two technical problems that VideoShare did not face is not relevant. What is relevant are the identified technical problems that VideoShare did confront. As shown above, VideoShare’s claimed solution overcame these technological problems and, by doing so, improved technology for transmitting video from user to user. The VideoShare claims are therefore not like the ones in *TLI*, where

- the patent applicant was not addressing *any* technological problem but instead was addressing the problem of efficiently organizing images—a problem that exists independent of any computer technology; and

- the applicant purported to solve that problem by merely automating traditional methods for organizing images.

In re TLI Commc'ns LLC Patent Litig., 823 F.3d 607, 612 (Fed. Cir. 2016) (“the telephone unit itself is merely a conduit for the abstract idea of classifying an image and storing the image based on its classification”).

2. The district court erred by concluding that the VideoShare claims merely automate a known manual process for transmitting video, because no such manual process was known.

Again citing *TLI*, the district court concluded that “the claims merely automate a sequence of known steps using conventional technology so that a human is not burdened with various manual steps.” Appx14. The purportedly known steps were:

“(a) manually using a general purpose computer to convert a video file into streaming video format, (b) manually selecting a thumbnail image from the video file using a general purpose computer, and (c) manually embedding the selected thumbnail image in a web page using a general purpose computer.”

Appx14. This conclusion is wrong for two reasons.

First, there is no evidence that, when transmitting video from user to user, it was known to manually perform any of individual steps (a), (b), or (c) that the district court identifies, or to perform their ordered combination, either at the transmitting user’s computer or at a receiving computer. The pleadings do not contain any such allegation. Nor is it stated in the patent specification. Nor was

this an age-old practice (like hedging risk, intermediated settlement, or playing bingo) whose steps were so well known that the district court could take judicial notice of them. *E.g. Alice Corp. Pty. v. CLS Bank Int'l*, 134 S. Ct. 2347, 2352 (2014); *Bilski v. Kappos*, 561 U.S. 593, 609 (2010); *Planet Bingo, LLC v. VKGS LLC*, 576 F. App'x 1005, 1007 (Fed. Cir. 2014) (non-precedential). Google's motion does not even assert it.

The only support cited by the district court—two statements by the patent examiner in the notices of allowance of the VideoShare patents—does not in fact support the district court's conclusion. The cited statements are:

- that a patent related to the '608 patent "was allowed on the basis of claiming an automated system which would convert an uploaded file directly into a streaming format independent of any command to do so, which is a feature similarly claimed in the instant application"; and
- that "[t]he claims [of the '302 patent] have been amended to recite a video distribution system with automated conversion to streaming format as similarly recited in the above allowed applications."

Appx14.

These statements do not establish that it was conventional to manually perform steps (a), (b), and (c). They say nothing at all about steps (b) and (c). As for step (a), they establish only that it was novel to perform automated conversion of a user's video into streaming format at a receiving computer. But the examiner's statements do not state that it was previously known to perform the conversion at a receiving computer (as contrasted with the user's computer) by

manual command. Moreover, the examiner's statements were not in the pleadings or anywhere in the record—they were first raised *sua sponte* by the district court in its order, with no opportunity for VideoShare to address them. That the district court was forced to search outside the record is a strong signal that the record refuted the court's conclusion.

Second, the pleaded facts and reasonable inferences from those facts established that manually carrying out steps (a), (b) and (c) was *not* the conventional way to transmit video from user to user at the time of the invention. To the contrary, as the specification explains, it was conventional to use the email or posting method—neither of which performed any of steps (a)-(c). Appx48 ('608 patent), 1:25-56. Furthermore, it was conventional to identify videos using alphanumeric strings—not thumbnails. Appx58 ('608 patent), 22:51-63.

Thus, the VideoShare claims are very different from the claims in *TLI*, which merely recited the steps necessary to carry out the age-old concept of taking pictures and storing them by category. *TLI*, 823 F.3d at 610. Similarly, they are different from the claims in *Affinity Labs*, which merely implemented an old practice in a new environment by reciting the steps necessary to carry out the age-old concept of “conveying regional content to out-of-region recipients” in the particular context of the claims (cellular telephones). *Affinity Labs of Texas, LLC*

v. DIRECTV, LLC, No. 2015-1845, 2016 WL 5335501, at *3 (Fed. Cir. Sept. 23, 2016).

Accordingly, the district court wrongly concluded that the claims merely automate a known sequence of manual steps.

3. The district court erred by concluding that the claims merely recite a desired result; the claims recite one particular way of transmitting a video over a network, not the result itself.

Relying on this Court’s holding in *Internet Patents*, the district court concluded that the VideoShare claims are not directed to a specific improvement in technology because they recite a result “without a restriction on how the result is accomplished.” Appx15-16. This conclusion is wrong because the VideoShare claims recite a particular, improved way of transmitting video from user to user over a computer network; they do not attempt to broadly claim any method of accomplishing this result.

A claim that simply recites a desired result—without reciting a specific way of achieving it—is not directed to a specific improvement in technology. It is directed to the abstract result itself and is not patent eligible. *McRO, Inc. v. Bandai Namco Games Am. Inc.*, No. 2015-1080, 2016 WL 4896481, at *8 (Fed. Cir. Sept. 13, 2016) (quoting *O'Reilly v. Morse*, 56 U.S. 62, 113 (1853)) (“The abstract idea exception has been applied to prevent patenting of claims that abstractly cover

results where ‘it matters not by what process or machinery the result is accomplished’”).

For example, in the *Internet Patents* case that the district court relies on, the claims were aimed at retaining information in the navigation of online forms, which the claims called “maintaining state.” *Internet Patents Corp. v. Active Network, Inc.*, 790 F.3d 1343, 1345 (Fed. Cir. 2015). But the claims did not recite any specific way of achieving this desired result. They merely recited the result itself—“maintaining state.” *Id.* The remaining limitations did not recite a particular way of maintaining state. Instead, they merely recited the conventional computer components that you would need to have online forms in the first place—a browser, a web page, and so forth. *Id.* Because the claims did not recite any specific way of achieving the desired “maintaining state” result, but instead merely recited the result itself, they were not directed to a specific improvement to technology. They were directed to “the result or effect produced.” *McRO, Inc. v. Bandai Namco Games Am. Inc.*, No. 2015-1080, 2016 WL 4896481, at *8 (Fed. Cir. Sept. 13, 2016) (internal citation omitted).

Similarly, in *Symantec*, the asserted claims were aimed at computer virus screening. But they did “not claim a new method of virus screening or improvements thereto.” *Intellectual Ventures I LLC v. Symantec Corp.*, No. 2015-1769, 2016 WL 5539870, at *8 (Fed. Cir. Sept. 30, 2016). Instead, they

“require[d] only ‘detecting . . . a virus in the computer data.’” *Id.* Because the claims did not recite any particular improved way of achieving the desired result of virus screening, but instead merely recited the result itself (“detecting . . . a virus”), they were not directed to a specific improvement in computer technology.

Unlike the claims in *Internet Patents* and *Symantec*, the VideoShare claims do not simply recite generic computer components like a computer, a video file, a network, and then recite the desired result without specifying any way of achieving it (for example: “transmit the video over the network” or “prepare the video for transmission over the network”). Instead, they recite one particular, improved way of transmitting a video from user to user over a computer network: a receiving computer that prepares a video from a user for streaming to a user over a computer network, using a specific server-side process.

The preemptive footprint of the VideoShare claims confirms this. Although preemption is not the test for patent-eligibility, examining the preemptive footprint of a claim is useful for distinguishing claims that merely recite a desirable result (which preempt all ways of achieving that result) from those that recite a specific way of achieving that result (which only preempt one of many ways of achieving the result). *McRO, Inc. v. Bandai Namco Games Am. Inc.*, No. 2015-1080, 2016 WL 4896481, at *8 (Fed. Cir. Sept. 13, 2016) (concluding that the claims are not directed to a result but rather a particular way of achieving a result because “[t]he

specific structure of the claimed rules would prevent broad preemption of all rules-based means of automating lip synchronization”).

The VideoShare claims do not preempt all ways of transmitting a video over a computer network, or even all ways of transmitting a video over a network in streaming video format. For example, the claims do not preempt emailing a video to another user. They do not preempt transferring a video from one user’s computer to another’s through a peer-to-peer connection. They do not preempt sharing a video in streaming video format on a web page by converting it to streaming video format at the user’s computer and then using a browser to upload the streaming video onto a web page. There are dozens of other ways of transmitting video from user to user that the VideoShare claims do not cover. Thus, the preemptive footprint of the claims confirms that they are directed to a particular way of achieving a result—a specific improvement in technology—and not a result regardless of how it is achieved.

In sum, the district court was wrong in concluding that the claims merely recite a result. The VideoShare claims are “limited to [a specific process for transmitting video from one user to another over a computer network] and do[] not preempt approaches that use . . . different” steps. *McRO*, 2016 WL 4896481, at *10. This confirms that “when looked at as a whole, [the VideoShare claims] are

directed to a patentable, technological improvement over the existing [techniques for transmitting video from user to user over a network].” *Id.*

The VideoShare claims are directed to a specific improvement in technology, not an abstract idea. They are patent eligible at *Mayo* step one.

II. *Mayo* step two: The VideoShare claims are patent eligible because they contain an inventive concept—they recite non-conventional technical steps that improve an existing technological process.

- A. A claim is patent eligible if it contains an inventive concept, i.e. it recites non-conventional technical steps or elements that improve an existing technological process.**

Mayo step two examines the claim elements to see if they set forth an “inventive concept.” *Alice Corp. Pty. v. CLS Bank Int’l*, 134 S. Ct. 2347, 2355 (2014).

A claim sets forth an inventive concept if it includes technical elements or steps that “go beyond ‘well-understood, routine, conventional activity’” and improve an existing technological process or apparatus. *Bascom Glob. Internet Servs., Inc. v. AT&T Mobility LLC*, 827 F.3d 1341, 1348 (Fed. Cir. 2016) (quoting *Alice*, 134 S. Ct. at 2359); *see, e.g., id.* at 1350 (Fed. Cir. 2016). For example, in *Bascom* the claims set forth an inventive concept because they included a “non-conventional and non-generic arrangement of known, conventional pieces” to achieve a “technical improvement over prior art ways of” filtering content on the

Internet that “improve[d] an existing technological process.” *Id.* In *DDR*, the claims set forth an inventive concept because they “recite[d] an invention that is not merely the routine or conventional use of the Internet” and that was “necessarily rooted in computer technology in order to overcome a problem specifically arising in the realm of computer networks.” *DDR Holdings, LLC v. Hotels.com, L.P.*, 773 F.3d 1245, 1257, 1259 (Fed. Cir. 2014); *see Rapid Litig. Mgmt. Ltd. v. CellzDirect, Inc.*, 827 F.3d 1042, 1051 (Fed. Cir. 2016) (claims eligible because they recite “a process of preserving hepatocytes” that “was itself far from routine and conventional”).

The inventive concept, however, must be found in an unconventional *technical* step or component—or arrangement of steps or components—that improves an existing *technological* process or apparatus. What is purportedly inventive cannot be merely the generic automation of an abstract concept such as a business practice, organizational method, or mental process. *Bascom*, 827 F.3d at 1350-51. Said differently, it would not suffice for a claim to merely recite performing the steps of an abstract process using conventional and routine technical steps—even if performing the abstract process in the technical environment of the claim (e.g. computers or networking) had never been done before. Such a claim would impermissibly preempt any implementation of the abstract process in that technological environment. “Given the ubiquity of

computers, wholly generic computer implementation is not generally the sort of ‘additional feature’ that provides any practical assurance that the process is more than a drafting effort designed to monopolize the abstract idea itself.” *Alice Corp. Pty. v. CLS Bank Int’l*, 134 S. Ct. 2347, 2358 (2014) (internal quotations and quotation marks omitted).

By contrast, a claim that uses an unconventional technical step or element to improve an existing technological process will be limited to a “specific, discrete implementation” of a concept. *Bascom*, 827 F.3d at 1350. This “ensure[s] that the patent in practice amounts to significantly more than a patent upon the abstract idea itself.” *Alice*, 134 S. Ct. at 2355 (internal quotation marks and citation omitted).

Finally, an inventive concept may be found in a claim step or element composed entirely of conventional components, so long as the recited arrangement of those components is an unconventional technical step or element. Said differently, it may be that a claim element “taken individually” may “recite generic computer, network and Internet components, none of which is inventive by itself.” *Bascom*, 827 F.3d at 1349. Nevertheless, “an inventive concept can be found in the non-conventional and non-generic arrangement of known, conventional pieces.” *Bascom*, 827 F.3d at 1350; *Rapid*, 827 F.3d at 1051 (“That each of the

claims' individual steps (freezing, thawing, and separating) were known independently in the art does not make the claim unpatentable").

Therefore, the step two analysis cannot focus only on the individual components recited in the claim limitations. It must examine the particular arrangement of components recited in the claims to see if the resulting claim steps or elements are unconventional. *Bascom*, 827 F.3d. at 1347 ("The 'inventive concept' may arise in one or more of the individual claim limitations or in the ordered combination of the limitations" (internal citation omitted)).

B. The VideoShare claims are patent eligible because they recite non-conventional technical steps that improved existing processes for transmitting video from one user to another, and do not merely apply an abstract process to a computer network environment using conventional operations.

1. The VideoShare claims recite non-conventional technical steps that improved existing processes for transmitting video from one user to another.

The VideoShare claims require:

(a) receiving a video file from a user at a receiving computer and using the receiving computer—rather than the user's computer—to process the video and prepare it for transmission to other users, Appx62 ('608 patent), claim 1; Appx95 ('302 patent), claim 1; and

(b) converting a video file received from a user to streaming video format and serving it in that format, *id.*

In addition, the claims of the ‘608 patent and certain claims of the ‘302 patent also require:

(c) generating thumbnail identifiers and embedding them in a web page, Appx62, claim 1; Appx95, claims 2 and 3.

Each of these steps (a), (b), and (c) uses known components: video files, servers, conversion, thumbnails, and so forth. But as shown below, each sets forth a technical step that was not known, not conventional, and, in fact, was contrary to the conventional wisdom. Accordingly, each step recites a “non-conventional and non-generic” technical step. *Bascom*, 827 F.3d at 1350. Moreover, the entire claimed solution—the “ordered combination” of all of the steps recited in the claims—is all the more unconventional because it combines multiple non-conventional steps.

a. **It was non-conventional to prepare a video for transmission at a receiving computer rather than at a user’s computer.**

At the time of the invention, it was conventional to prepare a video for transmission using software installed on the user’s computer. *See* Appx48 (‘608 patent), 1:30-35 (emailing a video “typically requires multiple computer programs to perform all of the necessary functions, including an e-mail application program to send or receive the video in computer file form, and a second program to play or display the video”); *id.* 1:39-44 (when posting a user video to a web page,

“software packages must exist and be used to prepare the video, and transmit it over the Web”).⁸ Indeed, it was conventional to create a version of the video suitable for transmission (usually by compressing it) on the transmitting user’s computer. Likewise, it was conventional for the identifier of the video (typically an alphanumeric string) to be created at the user’s computer and embedded into the distribution medium (an email or a web page) at the user’s computer.

For example, to transmit a video as an e-mail attachment, a user would compose an email at the user’s computer using an email client and attach the video to the email using that same client. Appx48 (‘608 patent), 1:25-35. Any identifier for the video would be generated at the user’s computer and embedded in the email at the user’s computer.

Similarly, to post a video to a web page, a user would have to generate a web page using web page editing software installed on his or her computer; embed a hyperlink to the video into that web page using the web page editing software; and then upload the video along with the web page to a web server using the FTP or HTTP protocol. *See, e.g., id.* 1:39-44 (“software packages must exist and be used to prepare the video, and transmit it over the Web using the File Transfer Protocol (FTP or ftp) or the HyperText Transfer Protocol (HTTP or http)”).

⁸ “The written description is particularly useful in determining what is well-known or conventional.” *Intellectual Ventures I LLC v. Symantec Corp.*, No. 2015-1769, 2016 WL 5539870, at *6 (Fed. Cir. Sept. 30, 2016).

Not only was it conventional to prepare a video for transmission at the user's computer, it was conventional for good reason. Video files in their original uncompressed format were very large and thus unsuitable for transmission over the slow dial-up connections that were prevalent at the time of the invention. It was therefore desirable to prepare them for transmission at the user's computer because this minimized the amount of data that needed to be transmitted over slow network connections. In addition, preparing a video for transmission at the user's computer did not require the user to be connected to the Internet during this often-time-consuming process. Finally, preparing the video at the user's computer gave the user control over how to present the video to the outside world (for example by choosing an appropriate identifier).

The VideoShare claims defied conventional wisdom. Instead of preparing the video for final transmission at the user's computer, the VideoShare claims required receiving "a video file sent by a user" at a "receiving computer" (e.g., a server), and then preparing the video for transmission—in the claimed process, by "converting the video file," "generating an identification tag," and "embedding the identification tag"—at the receiving computer before "serving the streaming video file." Appx62 ('608 patent), claim 1. It was counter-intuitive to require network transmission of a user's video to a receiving computer for format conversion of the video. And it was counter-intuitive to remove the step of generating an identifier

for the video from the control of the transmitting user. Accordingly, the recited arrangement of features—preparing a video for transmission at a receiving computer rather than at the user’s computer—was not well-understood, routine, conventional activity. It was a “non-conventional and non-generic arrangement”—just as locating user-specific content filtering on a server rather than on a client machine was in *Bascom Glob. Internet Servs., Inc. v. AT&T Mobility LLC*, 827 F.3d 1341, 1350 (Fed. Cir. 2016).

b. It was non-conventional to transmit a video from user to user in streaming video format.

The conventional methods to transmit video from user to user required the receiving user to receive the entire video before it could be accessed, Appx48 (‘608 patent), 1:25-28 (describing prior art methods of transmission where (1) video files were transmitted in their original format and (2) “the entire video file must be transmitted and received before the receiver can view the video file”). Although streaming video format existed and was thought useful for content providers, it was not used for transmitting video from user to user. *Id.*, 1:35-46 (describing two conventional ways of transmission). It was unsuitable because streaming video required the transmitting user to have streaming video infrastructure and the receiving user to have an active and sufficiently fast Internet connection.

The VideoShare claims did the opposite of the conventional. They required taking “a video file sent by a user on a second computer,” “converting the video into a streaming video format,” and “serving the streaming video file to one or more users.” Appx62 (‘608 patent), claim 1; *see* Appx95 (‘302 patent), claim 1 (reciting equivalent steps). This technical approach—transmitting a video from a user over a network to another user in streaming video format—was not well-understood, routine, conventional activity. It was a non-conventional and non-generic arrangement.

c. It was non-conventional to identify a video using a thumbnail embedded in a web page.

The conventional way of identifying a video at the time of the invention was to use an alphanumeric string. *See* Appx58 (‘608 patent), 22:56-63. It was sensible to use alphanumeric strings as identifiers because they are searchable, small in file size, do not take up a lot of space on a screen, can be automatically generated by a computer, and it is easy to ensure that they are unique. Appx58-59, 22:51-23:3 (contrasting conventional alphanumeric identifiers and the claimed “still image that is used as a reference image to the entire video file”).

The claims of the ‘608 patent—and claims 2 and 3 of the ‘302 patent—overrode this convention. Instead of using conventional alphanumeric strings to identify video files on a web page, the claims recited using thumbnails, i.e. “a video frame image representing a subject matter of the streaming video file,” as

identifiers instead. Appx62 ('608 patent), claim 1 (b2); Appx95 ('302 patent), claim 2, claim 3; *see* Appx58-59, 22:51-23:3 (describing preferred embodiment). Using thumbnails to identify videos deviated from the conventional methods of transmitting videos from user to user, which always used alphanumeric identifiers for this purpose.

Moreover, using thumbnails for identifying videos *on a web page*, as the claims recite, was particularly unconventional. At the time, web content relied heavily on search and was constrained by slow data transmission rates. In addition, a web page needed to fit within a browser window and thus was space-constrained. This made thumbnails—which were not searchable, had large file sizes (and were thus slow to transmit), and took up large portions of the screen—a non-conventional choice for identifying videos on a web page.

Accordingly, the recited combination of features—using thumbnails as video identifiers on a web page—was not well-understood, routine, conventional activity. It was non-conventional and non-generic.

The VideoShare claims recite individual technical steps that are more than well-understood, routine, conventional activity and that improve existing processes for transmitting video from one user to another. Furthermore, the entire claimed process—the ordered combination—is itself a non-conventional technical process

that improved existing technological processes. It relied on several unconventional technical steps to transmit video from user to user over a computer network. And it required dedicated infrastructure for transmitting video, at a time when it was conventional to transmit video using the same mechanism used to transmit other file types. Appx48 ('608 patent), 1:25-46.

Thus, the claims contain an inventive concept. They are patent eligible at *Mayo* step two.

2. **The VideoShare claims do not merely apply an abstract process to a computer network environment using conventional operations; they solved technical problems with existing processes for transmitting video from user to user and did so using unconventional operations.**

Google argued below that the VideoShare claims lack an inventive concept because they “do nothing more than apply the abstract idea [of translating and sharing content] using conventional computers and Internet operations.” Appx116.

But the claims do not merely apply an abstract concept to computer networks using conventional computer operations. Instead, the claims address technical problems with existing technological processes for transmitting video from user to user over a computer network, and do so using unconventional technical steps.

First, the claims do not merely “spell out what it means to ‘apply [translating and sharing content] on a computer’” or computer network.

Intellectual Ventures I LLC v. Capital One Bank (USA), 792 F.3d 1363, 1370 (Fed. Cir. 2015) (internal citations omitted).

Limitations that “spell out” what it means to apply a concept to a particular technological environment are those that would be necessarily performed when the concept is applied to the environment.

Intellectual Ventures is instructive. There, the claims were directed to the abstract idea of “tailoring content based on the viewer’s location or address” and merely applied that idea to the World Wide Web. *Intellectual Ventures*, 792 F.3d at 1370. The patent holder argued that the claims were limited to a specific implementation of this idea because they required an “interactive interface” consisting of a “web server with attendant software” that provided web pages and communicated with the user’s computer. *Id.* The Court disagreed. It explained that, in the context of the Web, to tailor content based on a viewer’s location or address, it was necessary to use an “interactive interface” having those features. As a result, this element “provide[d] no additional limitation beyond applying an abstract idea, restricted to the Internet, on a generic computer.” *Id.*

By contrast, applying the concept of “translating and sharing content” to a computer or to the Internet does not inevitably result in the steps of the VideoShare claims. For example, to “translate and share content” on the Internet, it is not necessary to receive a video file from a user by way of a web page at a receiving

computer or server. Nor is it necessary to convert the received video to streaming video format at a receiving computer, or generate an identifier for the video and embed it in a web page—much less to use a thumbnail as an identifier. One could, for example, translate (i.e. convert) the video to a different, non-streaming format at one’s computer and then email it to the recipient—which would not involve any of these limitations.

Because the steps that the claims recite are not necessary parts of applying the concept of “translating and sharing content” to computers, to the Internet, or to any other technological context, they do not “amount to ‘nothing significantly more’ than an instruction to apply [the abstract idea identified at step one] using some unspecified, generic computer.” *Alice Corp. Pty. v. CLS Bank Int’l*, 134 S. Ct. 2347, 2360 (2014) (internal citations omitted).

Second, the reason the VideoShare claims recite computer and networking components is not because the claims were applying some existing business practice to computer networks. It is because the claims were addressing problems with existing technological processes that involved computer networks. That is, “the claimed solution is necessarily rooted in computer technology in order to overcome a problem specifically arising in the realm of computer networks.” *DDR Holdings, LLC v. Hotels.com, L.P.*, 773 F.3d 1245, 1257 (Fed. Cir. 2014). The VideoShare claims addressed problems that came up only in situations where a

user was transmitting video to another user over a computer network, and not in situations where a video is shared without using computer networks:

- *long playback delays:* The ability to send or display a video is not limited by data transmission rates outside the context of computer networks. For example, a movie played at the theatre is not transmitted over a network and is not delayed as a result of slow data transmission rates.
- *the need for multiple computer programs:* The need to have multiple computer programs to prepare, send, and receive videos over computer networks is, by definition, limited to the context of computer networks.
- *the need for dedicated servers and technical know-how to post videos to a web page:* Posting to a web page must take place over the Internet, which is a computer network. Accordingly, difficulties associated with posting video files to a web page and identifying them do not exist outside of the context of computer networks.
- *difficulties in sharing and forwarding received videos:* Sharing or forwarding content or videos either does not come up at all, or does not present any of the problems the VideoShare patents address, outside the context of computer networks. For example, people do not “share” or “forward” TV broadcasts or movies watched in theatres. And although people might share movies contained on a physical medium (for example

VHS tapes), such sharing is not impacted by slow data transmission rates or the need to re-transmit a file received by email.

As shown above (section I.B), the recited limitations directly addressed these technical problems and provided a technical solution for them.

Third, Google failed to establish that the steps that the VideoShare claims recite are conventional, and record evidence demonstrates that they were not.

Google bears the burden of proof on its section 101 affirmative defense, and the burden of proof on its motion for judgment on the pleadings. But Google did not plead any facts showing that each of the steps that the VideoShare claims recite consist of purely conventional computer and Internet operations used to automate “translating and sharing content,” or any other pre-existing, non-technological concept. The only allegation related to section 101 in Google’s answer is that the claims are “invalid for failure to meet the conditions of patentability of 35 U.S.C. § 101.” Appx103. Those twelve words lack even a threadbare recital of the elements of a section 101 affirmative defense, much less any factual content that would allow the Court to draw any reasonable inferences supporting Google’s section 101 defense. Thus, Google pleaded no facts that would support a finding that the claims “do nothing more than apply the abstract idea [of translating and sharing content] using conventional computers and Internet operations”—much

less the indisputable facts Google would need to prevail on its section 101 defense at the pleading stage.

Moreover, because Google moved for judgment on the pleadings, the district court was required to accept as true all pleaded facts favorable to VideoShare (including those in the patent specifications, which were incorporated in the complaint) and to draw all reasonable inferences in favor of VideoShare. *Turbe v. Gov't of Virgin Islands*, 938 F.2d 427, 428 (3d Cir. 1991). And as shown above, facts in the complaint and specification, and inferences reasonably drawn from those facts, demonstrate that the claims do not merely apply an abstract idea using conventional computers and Internet operations, but instead recite non-conventional technical steps that improved user-to-user video transmission technology.

In sum, the claims “do not broadly and generically claim ‘use of the Internet’ to perform an abstract business practice (with insignificant added activity).” *DDR Holdings, LLC v. Hotels.com, L.P.*, 773 F.3d 1245, 1258 (Fed. Cir. 2014) (internal citations omitted); *see Bascom Glob. Internet Servs., Inc. v. AT&T Mobility LLC*, 827 F.3d 1341, 1350 (Fed. Cir. 2016) (“The claims do not merely recite the abstract idea of filtering content along with the requirement to perform it on the Internet, or to perform it on a set of generic computer

components.”). Instead, “the claimed solution is necessarily rooted in computer technology in order to overcome a problem specifically arising in the realm of computer networks.” *DDR Holdings*, 773 F.3d at 1257. The claims “recite a specific, discrete implementation of” transmitting video from user to user over a computer network. *Bascom*, 827 F.3d at 1350. Transmitting video from one user to another over a computer network on the Internet “was already a known concept, and the patent describes how its particular arrangement of elements is a technical improvement over prior art ways of” carrying out that technological process. *Id.*

C. The district court erred by concluding that the VideoShare claims do not contain an inventive concept.

1. The district court erred by concluding that the VideoShare claim limitations are conventional merely because they recite components that are individually known.

The district court concluded that the claims lack an inventive concept because the individual components and functions mentioned in the claims are each, individually, well-understood, routine, and conventional:

[T]he claims recite a “receiving computer,” “second computer,” “converting,” “generating,” “embedding,” “transmitting,” “network,” “web page,” and “storage device.” . . . All of the aforementioned computers, capabilities, and functions are well-understood, routine, and conventional activities, and the claims fail to recite any features that go beyond such conventional activities.

Appx18-19.

This conclusion is contrary to controlling law. As explained above, “an inventive concept can be found in the non-conventional and non-generic arrangement of known, conventional pieces.” *Bascom Glob. Internet Servs., Inc. v. AT&T Mobility LLC*, 827 F.3d 1341, 1349–1350 (Fed. Cir. 2016) (holding that claims that “recite generic computer, network and Internet components, none of which is inventive by itself” contain inventive concept).

If the district court’s reasoning were correct, no patent would be eligible under section 101. Every patentable invention is composed, at an atomic level, of pre-existing components and is claimed by using pre-existing vocabulary (except for the rare neologism). Thus, every patent eligible invention consists of a non-conventional use and arrangement of pre-existing components. For example, in *DDR*, the claims were constructed from entirely conventional components and functions: “web pages,” “computer store containing data,” “visually perceptible elements,” “active link,” “buying opportunity,” “merchants,” “displaying,” “computer server,” “web browser,” “signal indicating activation,” “automatically retrieve,” and “automatically generate and transmit.” *DDR Holdings, LLC v. Hotels.com, L.P.*, 773 F.3d 1245, 1249–50 (Fed. Cir. 2014). But, the Court held, the claims “satisfy *Mayo/Alice* step two” because the claimed arrangement of conventional elements recited a process that “overrides the routine and conventional sequence of events.” *Id.* at 1257–58.

The district court did not address the specific, unconventional arrangement of pre-existing components that the limitations of the VideoShare claims require—much less their ordered combination.⁹ Nor did the district court cite any evidence that such steps or their combination were routine and conventional (or even had ever been performed before the invention)—much less the indisputable record evidence that would have been required to grant Google’s motion at this stage. *Cf.* Appx18 (acknowledging that VideoShare had identified these features as unconventional in its opposition to Google’s motion, but failing to address them or to cite any record evidence showing that they amounted to nothing more than conventional activity).

The district court’s only reasoning to justify its conclusion is the following sentence: “For example, at the time of the invention, general purpose computers regularly received transmission, extracted information from messages, determined file formats, stored files in memory and provided files to be accessed over a network.” Appx19.

⁹ The district court asserted that “VideoShare does not argue that issues of material fact remain.” Appx6. This is simply false. VideoShare explicitly disputed the factual assertions made by Google: it argued that the claims recited non-conventional technical steps that improved user-to-user video transmission technology and that the claims did not merely recite conventional steps to automate a pre-existing abstract process. Appx205-208 (VideoShare’s opposition brief), section II(A)(2)(c) (“The claims solve technological problems by overriding the routine and conventional uses of computer technology”); *see* Appx208-209.

This reasoning addresses a straw claim that has no relationship to the actual claim limitations. The claimed process at the receiving computer is not receiving a “transmission,” “extracting information from a message,” “determining a file format,” and “providing a file to be accessed.” It is receiving a video file from a user, and at the receiving computer converting the video to streaming format, generating a thumbnail identifier, and embedding into a web page for streaming the video. Thus, that it may have been common for a generic computer to extract information from a message, or to determine a file format, does nothing to establish that it was conventional and routine for a user to transmit video by having a receiving computer convert a video file to streaming format and generate and embed a thumbnail identifier. The district court simply could not address the actual claim limitations, because there are no pleaded facts demonstrating that the actual claim limitations were routine and conventional; the record facts prove just the opposite.

2. The district court erred by concluding that the VideoShare claims merely automate a known manual process for transmitting video; no such manual process was known.

Relying on its step one analysis, the district court concluded that the claims do not contain an inventive concept because “as already discussed [in the district court’s analysis of *Mayo* step one], the claims do not result in an improvement in computer functionality” (Appx18) and instead “the claims merely automate what a

person could do manually with a general purpose computer” (Appx20); and “manually following the claimed conventional steps does not lead to an unconventional result” (Appx21). These conclusions are unsupported and contrary to fact and should be rejected for the same reasons that they should be rejected at step one.

First, the district court’s conclusion that the claims merely automate a conventional sequence of manual steps is wrong. There is no evidence that it was conventional when transmitting video from user to user to manually perform any of the steps that the district court identifies either at the transmitting user’s computer or at a receiving computer. *See* section I.C(2).

Second, the record facts, together with reasonable inferences from those facts, establish that the steps recited by the VideoShare claims were unconventional technical steps that solved each of the problems with conventional methods of sharing a user’s video over a computer network and thus improved user-to-user video transmission technology. *See* section II(B). The district court was required to accept those facts and inferences—and view them in the light most favorable to VideoShare—under the standard governing Google’s motion.

3. VideoShare *did* affirmatively demonstrate why the claim limitations are not routine and conventional; moreover, it was not required to do so to defeat Google’s motion.

In support of its conclusion that the VideoShare claims lack an inventive concept, the district court asserted:

“VideoShare responds [to Google’s arguments that the claims lack an inventive concept] by contending that Google has failed to meet its burden to prove that the additional features recited in the claim are more than well-understood, routine, and conventional activity. Rather than demonstrating why the claim limitations are not well-understood, routine, and conventional, VideoShare merely makes conclusory statements to this effect without explanation.”

Appx17. These assertions are wrong for two reasons.

First, VideoShare was not required to demonstrate that the claims recite more than well-understood, routine, conventional activity. It could have properly relied on Google’s failure to carry its burden—actually a double burden. Google has the burden of proof on its section 101 affirmative defense. And because Google raised the issue through a motion for judgment on the pleadings, Google faces the further burden of accepting as true all facts and inferences favorable to VideoShare, including facts and inferences gleaned from the patent specifications that were incorporated in the complaint. *Turbe v. Gov’t of Virgin Islands*, 938 F.2d 427, 428 (3d Cir. 1991). Accordingly, VideoShare was not required to demonstrate—based only on the pleadings—that the claims contain an inventive concept. Instead, Google was required to demonstrate the converse—*i.e.*, that the claims lack an inventive concept. Cf. *Bascom Glob. Internet Servs., Inc. v. AT&T Mobility LLC*, 827 F.3d 1341, 1350 (Fed. Cir. 2016) (“On this limited record, this

specific method of [transmitting user video over a computer network] cannot be said, as a matter of law, to have been conventional or generic.”).

Google pleaded no facts in its answer. And Google identified no judicially-noticed facts, or facts in VideoShare’s complaint, demonstrating that the claimed steps were well-known, routine, or conventionally used in transmitting video from one user to another. Thus, had VideoShare responded to Google’s motion only “by contending that Google has failed to meet its burden” (Appx17) as the district court asserted, Google’s motion should have been denied because Google did not meet its burden.

Second, VideoShare *did* affirmatively demonstrate why the claim limitations were more than well-understood, routine, and conventional activity. For example, as the district court acknowledges in the very same paragraph of its opinion, VideoShare argued that “routine methods of sharing video required transmitting files completely before the file could be accessed, using alphanumeric strings that are not ‘readily recognizable’ to identify files posted on a web page, and posting a file on a web page by manually generating a link to it and manually adding the link to a web page. VideoShare submit[ted] that such routine and conventional methods were ‘overridden’ by the claimed method of automatic conversion and processing of a file upon receipt to streaming video format with an associated thumbnail image.” Appx18 (summarizing VideoShare arguments) (internal

citations to VideoShare's briefing omitted); Appx205-Appx207 (VideoShare's briefing on this topic setting forth additional evidence that the recited claim limitations were not conventional). The district court never addressed VideoShare's arguments. Moreover, the court was required to accept as true the facts and inferences identified by VideoShare demonstrating that the claims "solve[d] technological problems by overriding the routine and conventional."¹⁰ Appx205 (VideoShare brief) (internal quotes omitted).

The VideoShare claims contain an inventive concept. They are patent eligible at *Mayo* step two.

¹⁰ Moreover, there was no efficiency in deciding Google's section 101 defense on the pleadings. Google waited over two-and-a-half years after the complaint was filed to bring its motion. By the time the district court ruled on the motion, fact and expert discovery was complete. Google did not request that its motion be converted to one for summary judgment and did not even seek permission to file a motion for summary judgment on its section 101 defense. Appx261-267 (Google's requests for leave to file summary judgment motions). If it had, VideoShare would have proffered compelling undisputed evidence, including evidence from its expert Dr. Kevin Almeroth, that the claims recite non-conventional technical steps that improved existing processes for transmitting video from one user to another.

III. Conclusion.

Because the VideoShare claims are patent eligible at both steps of the *Mayo* framework, the Court should reverse the district court's decision granting Google's motion for judgment on the pleadings.

November 2, 2016

Respectfully submitted,

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ADDENDUM

Index

Document	Pages
Order Granting Google's Motion for Judgment on the Pleadings (D.I. 184)	Appx001
Memorandum in Support of Order Granting Google's Motion for Judgment on the Pleadings	Appx002 – Appx021
U.S. Patent No. 8,438,608	Appx030 – Appx063
U.S. Patent No. 8,464,302	Appx064 – Appx096

IN THE UNITED STATES DISTRICT COURT
FOR THE DISTRICT OF DELAWARE

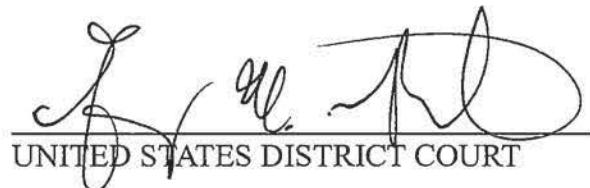
VIDEOSHARE, LLC,)
Plaintiff,)
v.) Civil Action No. 13-cv-990 (GMS)
GOOGLE, INC. and YOUTUBE, LLC,)
Defendants.)

ORDER

For the reasons stated in the court's Memorandum of this same date, IT IS HEREBY ORDERED that:

1. The Defendants' Motion for Judgment on the Pleadings is GRANTED;
2. U.S. Patent No. 8,438,608 is INVALIDATED, pursuant to 35 U.S.C. § 101;
3. U.S. Patent No. 8,464,302 is INVALIDATED, pursuant to 35 U.S.C. § 101;
4. The above-captioned case is DISMISSED;
5. The Clerk of the Court is directed to close this case.

Dated: August 2, 2016



UNITED STATES DISTRICT COURT

IN THE UNITED STATES DISTRICT COURT
FOR THE DISTRICT OF DELAWARE

VIDEOSHARE, LLC,)	
)	
)	
Plaintiff,)	
)	
v.)	Civil Action No. 13-cv-990 (GMS)
)	
GOOGLE, INC. and YOUTUBE, LLC,)	
)	
Defendants.)	
)	

MEMORANDUM

I. INTRODUCTION

On June 4, 2013, Plaintiff VideoShare, LLC (“VideoShare”) initiated this patent infringement lawsuit against Google, Inc. and YouTube, LLC (collectively “Google”), alleging infringement of U.S. Patent No. 8,438,608 (“the ’608 patent”). VideoShare amended its complaint on June 26, 2013, to also allege infringement of U.S. Patent No. 8,464,302 (“the ’302 patent”). Presently before the court is Google’s Motion for Judgment on the Pleadings pursuant to Federal Rule of Civil Procedure 12(c). (D.I. 84.) Google argues that the ’608 and ’302 patents are invalid under 35 U.S.C. § 101 for claiming patent-ineligible subject matter. For the reasons discussed below, the court will grant Google’s Motion.

II. BACKGROUND

The ’608 patent describes a method and system for sharing streaming video over a network. Claim 1 is representative:¹

¹ System claim 14 of the ’608 patent merely recites general computer components for performing the same method steps recited in claim 1.

1. A method of streaming a video to users over a network, the method comprising the steps of:
 receiving, by a receiving computer via a web page, a video file sent by a user on a second computer on a network;
 executing, by the receiving computer, in response to receiving the video file, an automated function automatically performing each of:
 - (b1) converting the video file into a streaming video file comprising a streaming video format, the video file being converted independent from receiving a command to perform such conversion from the user;
 - (b2) generating an identification tag comprising a video frame image representing a subject matter of the streaming video file and identifying the streaming video file; and
 - (b3) embedding the identification tag comprising the video frame image into a web page for serving the streaming video file to one or more users on one or more computers on the network.

'608 patent, claim 1.

The '302 patent similarly describes a method and system for sharing streaming video over a network, but additionally requires an associated advertisement. Claim 1 is representative:²

1. A method of sharing a streaming video and associated advertisement over a network, comprising:
 executing, by a first computer:
 - receiving an advertisement;
 - storing the advertisement;
 - receiving a video file;
 - converting the video file into a streaming video file comprising a streaming video format, independent from receiving a command to perform such conversion;
 - storing the streaming video file to a storage device; generating an identification tag identifying the stored streaming video file;
 - associating the streaming video file with the advertisement;
 - embedding the identification tag into a web page accessible to a plurality of users on the network;
 - receiving, via a web page, a request to transmit the streaming video file; and

² System claim 14 of the '302 patent merely recites general computer components for performing the same method steps recited in claim 1.

transmitting, via a web page, the streaming video file and the advertisement to a second computer on the network.

'302 patent, claim 1.

Google argues that the '608 and '302 patents are invalid for claiming “the patent-ineligible abstract idea of translating (converting) content and sharing the translated content (such as video segments), with or without accompanying advertisements.” (D.I. 85 at 1.) Google further contends that there is no “inventive concept” under *Alice* step two because the patent claims “do nothing more than apply the abstract idea using conventional computers and Internet operations.” (*Id.* at 2.)

III. LEGAL STANDARD

Pursuant to Federal Rule of Civil Procedure 12(c), a party may move for judgment on the pleadings “[a]fter pleadings are closed—but early enough not to delay trial.” When evaluating a motion for judgment on the pleadings, the court must accept all factual allegations in a complaint as true and view them in the light most favorable to the non-moving party. *See Rosenau v. Unifund Corp.*, 539 F.3d 218, 221 (3d Cir. 2008); *see also Maio v. Aetna, Inc.*, 221 F.3d 472, 482 (3d Cir. 2000). A Rule 12(c) motion will not be granted “unless the movant clearly establishes that no material issue of fact remains to be resolved and that he is entitled to judgment as a matter of law.” *Rosenau*, 539 F.3d at 221. This is the same standard as a Rule 12(b)(6) motion to dismiss. *See Revell v. Port Auth.*, 598 F.3d 128, 134 (3d Cir. 2010). “The purpose of judgment on the pleadings is to dispose of claims where the material facts are undisputed and judgment can be entered on the competing pleadings and exhibits thereto, and documents incorporated by reference.” *Venetec Int'l, Inc. v. Nexus Med., LLC*, 541 F. Supp. 2d 612, 617 (D. Del. 2008); *see also In re Burlington Coat Factory Sec. Litig.*, 114 F.3d 1410, 1426 (3d Cir. 1997) (explaining that any documents integral to pleadings may be considered in connection with Rule 12(c) motion). Moreover,

disposal of patent infringement cases based on the pleadings alone has been repeatedly sanctioned by the Federal Circuit when “claims are plainly directed to a patent-ineligible abstract idea.” *See OIP Techs., Inc. v. Amazon.com, Inc.*, 788 F.3d 1359, 1364 (Fed. Cir. 2015) (Mayer, J., concurring).

Section 101 describes the general categories of patentable subject matter: “Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.” 35 U.S.C. § 101. These broad classifications are limited, however, by exceptions. “Laws of nature, natural phenomena, and abstract ideas are not patentable.” *Alice Corp. v. CLS Bank Int’l*, 134 S. Ct. 2347, 2354 (2014) (quoting *Ass’n for Molecular Pathology v. Myriad Genetics, Inc.*, 133 S. Ct. 2107, 2216 (2013)). Courts have eschewed bright line rules circumscribing the contours of these exceptions. *See id.* (“[W]e tread carefully in construing this exclusionary principle lest it swallow all of patent law. At some level, all inventions . . . embody, use, reflect, rest upon, or apply laws of nature, natural phenomena, or abstract ideas.”) (internal citation and quotations marks omitted). The Supreme Court’s decision in *Alice* reaffirmed the framework first outlined in *Mayo Collaborative Services v. Prometheus Laboratories, Inc.*, 132 S. Ct. 1289 (2012), used to “distinguish[] patents that claim laws of nature, natural phenomena, and abstract ideas from those that claim patent-eligible applications of those concepts.” *See Alice*, 134 S. Ct. at 2355.

First, we determine whether the claims at issue are directed to one of those patent-ineligible concepts. If so, we then ask, what else is there in the claims before us? To answer that question, we consider the elements of each claim both individually and as an ordered combination to determine whether the additional elements transform the nature of the claim into a patent-eligible application. We have described step two of this analysis as a search for an “inventive concept”—*i.e.*, an element or combination of elements that is

sufficient to ensure that the patent in practice amounts to significantly more than a patent upon the ineligible concept itself.

Id. (internal citations, quotations marks, and alterations omitted). “[A]n invention is not rendered ineligible for patent simply because it involves an abstract concept.” *Alice*, 134 S. Ct. at 2354. Thus, the court must determine (1) if the patented technology is directed to ineligible subject matter, and, if so, (2) whether there are sufficient inventive elements such that the invention is “significantly more” than a patent on an ineligible concept.” See *DDR Holdings, LLC v. Hotels.com, L.P.*, 773 F.3d 1245, 1255 (Fed. Cir. 2014) (quoting *Alice*, 134 S. Ct. at 2355); see also *Intellectual Ventures I LLC v. Capital One Bank (USA)*, 792 F.3d 1363, 1366 (Fed. Cir. 2015); *OIP Techs.*, 788 F.3d at 1362.

IV. DISCUSSION

Judgment on the pleadings is proper because no material issue of fact remains to be resolved and Google is entitled to judgment as a matter of law.³ VideoShare does not argue that issues of material fact remain, that the court would benefit from expert testimony, or that judgment on the pleadings at this stage is not procedurally proper. Moreover, applying the two-step framework outlined in *Alice*, the court is persuaded by clear and convincing evidence that the ’608 and ’302 patents are invalid under 35 U.S.C. § 101 for claiming an abstract idea without reciting additional limitations that amount to something “significantly more” than the abstract concept itself. See *Alice*, 134 S. Ct. at 2355.

1. Step 1: Abstract Idea

The first step of the § 101 analysis requires determining whether the claims are “directed to” an abstract idea. *DDR Holdings*, 773 F.3d at 1255. “The ‘abstract ideas’ category embodies

³ The court addresses Google’s motion with caution, cognizant of the gravity of dismissing a complex case at an early stage of litigation.

the longstanding rule that an idea of itself is not patentable.” *Alice*, 134 S. Ct. at 2355 (internal quotation marks omitted) (quoting *Gottschalk v. Benson*, 409 U.S. 63, 67 (1972)). Although the Supreme Court has not “delimit[ed] the precise contours of the ‘abstract ideas’ category,” *Alice*, 132 S. Ct. at 2357, several decisions by the Supreme Court, reaffirmed in *Alice*, have provided some guidance on patent-ineligible subject matter, *id.* at 2355–56. For example, the Supreme Court has confirmed that without an inventive concept, claims covering algorithms, mathematical formulas, and fundamental economic practices are patent-ineligible. *See Benson*, 409 U.S. at 71–72 (finding patent-ineligible claims involving an algorithm for converting binary-coded decimal numerals into pure binary that “in practical effect would be a patent on the algorithm itself”); *Parker v. Flook*, 437 U.S. 584, 594–95 (1978) (finding patent-ineligible a mathematical formula for computing an alarm limit in a chemical process); *Bilski v. Kappos*, 561 U.S. 593, 611 (2010) (finding patent-ineligible the concept of hedging, which is a “fundamental economic practice long prevalent in our system of commerce”); *Alice*, 134 S. Ct. at 2356 (finding patent-ineligible the concept of intermediated settlement that is a “longstanding commercial practice” and “a method of organizing human activity”).

The Federal Circuit recently emphasized that the “directed to” inquiry is a “meaningful one” that must go beyond “simply ask[ing] whether the claims *involve* a patent-ineligible concept.” *Enfish, LLC v. Microsoft Corp.*, 822 F.3d 1327, 1335 (Fed. Cir. 2016). In particular, the Federal Circuit clarified that computer-related inventions are not inherently abstract, and therefore such technologies are not necessarily analyzed only at the second step of the *Alice* framework. *Id.* at 1335–36. The Federal Circuit acknowledged, however, that “[i]dentifying the precise nature of the abstract idea is not . . . straightforward.” *DDR Holdings*, 773 F.3d at 1257. *Enfish* warns against “describing the claims at such a high level of abstraction and untethered from the language

of the claims” that “all but ensures that the exceptions to § 101 swallow the rule.” *Enfish*, 822 F.3d at 1337.

Once it is determined what the claims are “directed to,” the next inquiry is whether the claims are directed to an abstract idea. Although there are no bright-line rules regarding whether a particular idea is to be considered abstract as a matter of law, case law illustrates some common themes. For example, the Supreme Court and Federal Circuit have found abstract ideas embodied by claims directed to longstanding economic practices, abstractions having no tangible form, and functions humans have always performed. *See Bilski*, 561 U.S. at 611 (finding claims directed to “hedging” to be drawn to an abstract idea because it is a “fundamental economic practice long prevalent in our system of commerce”); *Alice*, 134 S. Ct. at 2356 (finding claims directed to “intermediated settlement” to be drawn to an abstract idea because it is a “longstanding commercial practice” and “a method of organizing human activity,” similar to *Bilski*); *Ultramercial, Inc. v. Hulu, LLC*, 772 F.3d 709, 715 (Fed. Cir. 2014) (finding claims directed to “showing an advertisement before delivering free content” to be drawn to an abstract idea because it is “an abstraction—an idea, having no particular concrete or tangible form”); *Content Extraction & Transmission LLC v. Wells Fargo Bank, Nat. Ass’n*, 776 F.3d 1343, 1347 (Fed. Cir. 2014) (finding claims directed to “1) collecting data, 2) recognizing certain data within the collected data set, and 3) storing that recognized data in a memory” to be drawn to an abstract idea because such functions are “undisputedly well-known” and “humans have always performed these functions”); *buySAFE, Inc. v. Google, Inc.*, 765 F.3d 1350, 1355 (Fed. Cir. 2014) (finding claims directed to a “transaction performance guaranty” to be drawn to an abstract idea because it is a concept “that is beyond question of ancient lineage”); *Mortgage Grader, Inc. v. First Choice Loan Servs. Inc.*, 811 F.3d 1314, 1324 (Fed. Cir. 2016) (finding claims directed to “anonymous loan shopping” to be drawn

to an abstract idea because it “could all be performed by humans without a computer”); and *Versata Dev. Grp., Inc. v. SAP Am., Inc.*, 793 F.3d 1306, 1333 (Fed. Cir. 2015) (noting claims directed to “a method of verifying the validity of credit card transactions over the Internet” were patent-ineligible because the method steps could be performed “in the human mind or by a human using a pen and paper”) (citing *CyberSource Corp. v. Retail Decisions, Inc.*, 654 F.3d 1366 (Fed. Cir. 2011)).

In computer-related technologies, the Federal Circuit recently clarified that a relevant question to ask even at the first step of the *Alice* analysis is “whether the focus of the claims is on the specific asserted improvement in computer capabilities . . . or, instead, on a process that qualifies as an ‘abstract idea’ for which computers are invoked merely as a tool.” *Enfish*, 822 F.3d at 1335–36. Such claims directed to an improvement in computer functionality can be contrasted with those that (1) “simply add[] conventional computer components to well-known business practices; (2) “use . . . an abstract mathematical formula on any general purpose computer;” (3) recite “a purely conventional computer implementation of a mathematical formula;” or (4) recite “generalized steps to be performed on a computer using conventional computer activity.” *In re TLI Commc'n LLC Patent Litig.*, 823 F.3d 607, 612 (Fed. Cir. 2016) (citing *Enfish*, 822 F.3d at 1338) (collecting cases).

Against this backdrop, the court turns to the present action and Google’s Motion for Judgment on the Pleadings. Google argues that the claims of the ’608 and ’302 patents are directed to the abstract idea of “translating . . . content and sharing the translated content . . . with or without advertisements.” (D.I. 85 at 1.) Google alleges this concept “has been practiced in various forms throughout history,” including translating books into different languages and sharing the translated books, translating video from a film reel into a format for distribution (e.g., VHS or DVD) and

distributing the translated video, and the process whereby *America's Funniest Home Videos* translates VHS video tapes received from the public, translates them into a format for broadcast, and then broadcasts the translated video. (*Id.* at 5-9.)

In response, VideoShare derides Google’s “directed to” formulation for omitting “core claimed features,” resulting in a “fail[ure] to capture what the claims are directed to.” (D.I. 107 at 1.) VideoShare alleges that the claims “are actually directed to systems and methods of sharing video over a computer network by automatically, upon receipt, converting video files to streaming video format and serving them via a webpage with identifying thumbnails generated from the video frame images.” (*Id.*)

The court rejects both parties' formulations. On the one hand, Google's proposal risks running afoul of *Enfish*'s warning against "describing the claims at such a high level of abstraction [so as to be] untethered from the language of the claims." See *Enfish*, 822 F.3d at 1337. On the other hand, VideoShare's formulation is loaded with nearly every step or feature recited in the claims, thereby defeating the distillative purpose of the "directed to" inquiry. The court finds both the '608 and '302 patent claims are directed to preparing a video in streaming video format for sharing over a computer network. This formulation remains tethered to the claim language, while at the same time distilling the thrust of the claims to a basic concept consistent with the formulations adopted in Supreme Court and Federal Circuit decisions. See, e.g., *Alice*, 134 S. Ct. at 2356 (finding the claims directed to "intermediated settlement"); *Ultramercial*, 772 F.3d at 715 (finding the claims directed to "showing an advertisement before delivering free content"); *Content Extraction*, 776 F.3d at 1347 (finding the claims directed to "1) collecting data, 2) recognizing certain data within the collected data set, and 3) storing that recognized data in a memory," or more simply, "[t]he concept of data collection, recognition, and storage"); *In re TLI*

Commc'ns, 823 F.3d at 611 (finding the claims directed to “classifying and storing digital images in an organized manner”). The court’s conclusion also finds basis in the ’608 and ’302 patent specifications, which disclose that the invention “relates to sharing video in streaming video format over a network” ’608 patent at 1:20–21 and ’302 patent at 1:18–19. Consideration of additional limitations provided by the claims is properly deferred to the second step of the *Alice* analysis.

Next, the court examines whether these claims are directed to an abstract idea. The court finds instructive the analysis of *TLI Communications*, in which the Federal Circuit found the asserted claims were directed to an abstract idea. 823 F.3d at 609. Representative claim 17 is set forth below:

17. A method for recording and administering digital images, comprising the steps of:
recording images using a digital pick up unit in a telephone unit,
storing the images recorded by the digital pick up unit in a digital form as digital images,
transmitting data including at least the digital images and classification information to a server, wherein said classification information is prescribable by a user of the telephone unit for allocation to the digital images,
receiving the data by the server,
extracting classification information which characterizes the digital images from the received data, and
storing the digital images in the server, said step of storing taking into consideration the classification information.

U.S. Patent No. 6,038,295 (“the ’295 patent”) at 10:1–17. The Federal Circuit found claim 17 to be directed to “the abstract idea of classifying and storing digital images in an organized manner.”

In re TLI Commc'ns, 823 F.3d at 611. The Federal Circuit observed that although the claims recite some tangible components, such as a “telephone unit” and a “server,” the patent specification revealed that such components “merely provide a generic environment in which to carry out the abstract idea.” *Id.* The Federal Circuit also determined that the claims are “not directed to a

specific improvement to computer functionality,” but rather “are directed to the use of conventional or generic technology in a nascent but well-known environment, without any claim that the invention reflects an inventive solution to any problem presented by combining the two.” *Id.* at 612.

In expounding on this lack of an improvement to computer functionality, the Federal Circuit noted that the inventor was not faced with the problems of combining a camera and a cellular telephone, transmitting images via a cellular network, or associating the images with classification information. *Id.* Rather, “the inventor sought to ‘provid[e] for recording, administration and archiving of digital images simply, fast and in such way that the information therefore may be easily tracked.’” *Id.* (quoting ’295 patent at 1:62–65). The Federal Circuit further noted that the telephone, server, and other tangible components were not new and were described in the specification predominately in functional terms. *Id.*

Here, just as in *TLI Communications*, the claims are directed to an abstract idea because the claims are not directed to an improvement in computer functionality, and the physical components of the claim merely provide a generic environment for carrying out the abstract idea. In determining whether an improvement in computer functionality exists, it is useful to consider the problems solved by the claimed invention. VideoShare argues that the claims address three problems with how conventional video files are transferred over computer networks: 1) although conventional methods to transfer such files required transmitting the entire file before it could be viewed, the present claims require conversion upon receipt to a format (i.e., streaming video format) that does not require complete transmission before viewing; 2) the claims address problems associated with using an alphanumeric string to identify a video by instead generating

and embedding a thumbnail; and 3) the claims overcome the burden of manually posting a link associated with a video to a web page by automating this process. (D.I. 107 at 13–14.)

The court is not persuaded that the claimed invention results in an improvement to computer functionality. VideoShare did not invent the technology that converts video files into streaming format. For example, the '608 patent discloses that proprietary VideoShare Producer software can be used to carry out the claimed invention, but this software is “built upon . . . third-party technologies that provide . . . file format conversion,” including various Microsoft products. '608 patent at 19:38–43. The file format conversion is disclosed to be “generally algorithmic in nature.” *Id.* at 14:42–46. Other than these generic disclosures, the specification does not disclose any specific algorithms or specific software code that carries out the file format conversion, nor do the claims recite the VideoShare software as part of the invention. Similarly, VideoShare did not invent thumbnails, the extraction of such thumbnails from video files, or the embedding of thumbnails. VideoShare admits this, and argues in response that “the inventive aspect of [the identification tag] limitations is not creating a thumbnail or adding a link to a webpage but rather using a webpage that includes identifying thumbnails to serve video files over a network.” (D.I. 107 at 18.) But “the prohibition against patenting abstract ideas cannot be circumvented by attempting to limit the use of the idea to a particular technological environment.” *Alice*, 134 S. Ct. at 2358 (internal quotations and alterations omitted). *See also Ultramercial*, 772 F.3d at 716 (“As we have held, the use of the Internet is not sufficient to save otherwise abstract claims from ineligibility under § 101”). Moreover, VideoShare was not confronted with the problem of how to combine conversion technology and the Internet, or how to associate identification tags with video files.

At most, the claims merely automate a sequence of known steps using conventional technology so that a human is not burdened with various manual steps (D.I. 107 at 13–14), including (a) manually using a general purpose computer to convert a video file into streaming video format, (b) manually selecting a thumbnail image from the video file using a general purpose computer, and (c) manually embedding the selected thumbnail image in a web page using a general purpose computer. Indeed, the United States Patent Examiner allowed both the '608 and '302 patents because they recited such automation. *See* '608 patent, November 27, 2012 Office Action at 3–4 (noting a related patent “was allowed on the basis of claiming an automated system which would convert an uploaded file directly into a streaming format independent of any command to do so, which is a feature similarly claimed in the instant application”); '302 patent, March 21, 2013 Office Action at 4 (“The claims have been amended to recite a video distribution system with automated conversion to streaming format as similarly recited in the above allowed applications . . . ”).

The ordered arrangement of such conventional features provides no discernable benefits to computer functionality. This stands in stark contrast to claims which achieved such improvements to computing technology. *See Enfish*, 822 F.3d at 1337 (finding increased flexibility, faster search times, and smaller memory requirements resulting from the claimed self-referential table); *Bascom Glob. Internet Servs., Inc. v. AT&T Mobility LLC*, No. 2015-1763, 2016 WL 3514158, at *7 (Fed. Cir. June 27, 2016) (finding the claimed arrangement for filtering content over the internet to be a technological improvement over prior art filters that were inflexible, susceptible to hacking, and dependent on local computer resources). Additionally, the physical components in the claims, such as the receiving computer, first computer, and web page, merely provide a generic

environment for carrying out the abstract idea of preparing a video in streaming video format for sharing over a computer network.

The court also notes strong parallels between the language of the claims asserted here and the patent-ineligible claims in *TLI Communications*. For example, the claims in *TLI Communications* recite, among other things, receiving digital images via a server, “extracting classification information which characterizes the digital images,” and “storing the digital images in the server” with the classification information taken into consideration. *See* ’295 patent, claim 17. These steps are strikingly similar to certain steps of claim 1 of both the ’608 and ’302 patents, which recite, among other things, receiving a video file via a computer, generating an identification tag that identifies the video, and embedding the identification tag into a web page. The “identification tag” of the instant claims is quite similar to the “classification information which characterizes the digital images.” *See* ’295 patent, claim 17. Notably, the court in *TLI Communications* stated that “attaching classification data, such as dates and times, to images for the purpose of storing those images in an organized manner is well-established ‘basic concept’ sufficient to fall under *Alice* step 1.” *In re TLI Commc’ns*, 823 F.3d at 613. In the same way, attaching an identification tag, such as a video frame image, for the purpose of identifying the stored streaming video file is also a basic concept.

The court also notes similarities to *Internet Patents Corp. v. Active Network, Inc.*, 790 F.3d 1343 (Fed. Cir. 2015). In *Internet Patents*, the Federal Circuit found the claims were directed to the abstract idea of “retaining information in the navigation of online forms” because many of the claim limitations were disclosed in the specification to be “conventional” and the claims failed to recite a restriction on how the result was accomplished. *Id.* at 1348. The claims of the ’608 and ’302 patents similarly recite conventional features without a restriction on how the result is

accomplished. For example, claim 1 of both the '608 and '302 patents generically recite “converting the video file into a streaming video file,” “generating an identification tag,” and “embedding the identification tag . . . into a web page.” But claim 1 of each patent does not specify *how* these tasks are completed, but rather merely specifies *what* is to happen. In looking to the specification to determine the “*how*,” it is apparent that conventional computers are all that is needed to carry out the various steps, without any improved functionality resulting from the arrangement of such conventional computers or their functions. *See, e.g.*, '608 patent at 15:41–64 (disclosing the second computer to include “a personal computer of conventional type such as a desktop or laptop computer, a hand held device such as a PDA, or a more powerful computer such as a workstation, a server, a mini-computer, a mainframe, or the like”).

In view of the foregoing reasons, the court concludes the claims of the '608 and '302 patents are directed to an abstract idea—the abstract idea of preparing a video in streaming video format for sharing over a computer network.⁴ The court proceeds to step two of the *Alice* inquiry.

2. Inventive Concept

Not all patents directed to abstract ideas are patent ineligible under § 101. Therefore, although the '608 and '302 patents recite an abstract idea, they will not be found invalid if there is evidence of an inventive concept or contribution: “an element or combination of elements that is sufficient to ensure that the patent in practice amounts to significantly more than a patent upon the ineligible concept itself.” *See Alice*, 134 S. Ct. at 2355. But drawing a line between patent-eligible and patent-ineligible manifestations of abstract ideas is often difficult. *See DDR Holdings*,

⁴ In some cases, “there may be close calls about how to characterize what the claims are directed to.” *Enfish*, 822 F.3d at 1339. *See also Bascom*, 2016 WL 3514158, at *5 (finding the case before it to be one of these “close calls”). In such cases, when “the claims and their specific limitations do not readily lend themselves to a step-one finding that they are directed to a nonabstract idea, . . . consideration of the specific claim limitations’ narrowing effect [may be deferred to] step two.” *Id.* Even if the present case represents one of those “close calls,” the court properly continues to step two of *Alice*.

773 F.3d at 1255. The recitation of “well-understood, routine, conventional activities,” previously known to the industry, however, is insufficient to “transform the claimed abstract idea into a patent-eligible application.” *OIP Techs.*, 788 F.3d at 1363 (internal alteration and quotation marks omitted) (quoting *Alice*, 134 S. Ct. at 2359). In determining whether the claims possess an inventive concept, the elements of a claim must be considered both individually and as an ordered combination. *Alice*, 134 S. Ct. at 2355.

Google contends that the claims do not possess an inventive concept because the claims merely implement an abstract idea using generic computing technology to “perform well-known, routine, and conventional activities.” *See Content Extraction*, 776 F.3d at 1348. Google walks through the conventional nature of the various individual features of the claims—including the recited computer functions, Internet functions, conversion to streaming video format, generation/embedding of the identification tag, and association of an advertisement—supporting its argument with the specifications and case law. (D.I. 85 at 11–17.) Google also contends that the ordered combination of these features is not inventive because “the components of each claim add nothing that is not already present when the steps are considered separately.” (*Id.* at 17–18) (citing *Versata*, 793 F.3d at 1334).

VideoShare responds by contending that Google has failed to meet its burden to prove that the additional features recited in the claim are more than well-understood, routine, and conventional activity. (D.I. 107 at 15.) Rather than demonstrating *why* the claim limitations are *not* well-understood, routine, and conventional, VideoShare merely makes conclusory statements to this effect without explanation. (*Id.* at 16.) Citing *DDR Holdings*, VideoShare argues that the claims are patent-eligible because the claims are “necessarily rooted in computer technology in order to overcome a problem specifically arising in the realm of computer networks” and the

claims “solve technological problems by overriding the routine and conventional uses of computer technology.” (D.I. 107 at 12–13 (internal quotation marks omitted).) Specifically, VideoShare argues that the claims solve problems created by using technology in its routine and expected manner. (*Id.* at 12–13.) In this regard, routine methods of sharing video required transmitting files completely before the file could be accessed, using alphanumeric strings that are not “readily recognizable” to identify files posted on a web page, and posting a file on a web page by manually generating a link to it and manually adding the link to a web page. (*Id.* at 13.) VideoShare submits that such routine and conventional methods were “overridden” by the claimed method of automatic conversion and processing of a file upon receipt to streaming video format with an associated thumbnail image. (*Id.* at 13–14.)

The court agrees with Google that the limitations of the claims of the ’608 and ’302 patents, when considered both individually and as an ordered combination, do not contain an inventive concept and thus fail to transform the abstract idea into patent eligible subject matter. Significantly, as already discussed, the claims do not result in an improvement in computer functionality. Moreover, the claims merely recite conventional computer components or functions that involve the use of a computer network, such as the Internet. For example, the claims recite a “receiving computer,” “second computer,” “converting,” “generating,” “embedding,” “transmitting,” “network,” “web page,” and “storage device.” The specification discloses the “receiving computer” to have the capabilities of “receiving the transmission of a video file . . . [via] e-mail, HTML message, Web page format, or FTP upload, . . . extracting from the received message the video and all information sent with the video, . . . determining whether the video is already in a format compatible with streaming video, . . . storing a copy of the video in video format in an archival machine-readable storage, . . . recording in a database . . . the identification

tag and the storage location [of the video], . . . and serving the video in streaming video format.” ’608 patent at 9:50–10:51. The “second computer,” which is the computer on which a user can submit a video and access a streaming video, can include “a personal computer of conventional type such as a desktop or laptop computer, a hand held device such as a PDA, or a more powerful computer such as a workstation, a server, a mini-computer, a mainframe, or the like.” *Id.* at 15:41–64. The network can be the Internet. *Id.* at 1:58.

All of the aforementioned computers, capabilities, and functions are well-understood, routine, and conventional activities, and the claims fail to recite any features that go beyond such conventional activities. *See In re TLI Commc’ns*, 823 F.3d at 613 (examining the specification for meaning of claim terms such as “telephone unit,” “server,” “image analysis unit,” and “control unit,” and concluding that all of the components “behave exactly as expected according to their ordinary use.”). For example, at the time of the invention, general purpose computers regularly received transmissions, extracted information from messages, determined file formats, stored files in memory, and provided files to be accessed over a network. Additionally, considering the individual features of the claim as an ordered combination does nothing to provide an inventive concept. *See Versata*, 793 F.3d at 1334 (“[T]he components of each claim add nothing that is not already present when the steps are considered separately.”).

The claims here specify only conventional steps at a high level of generality, and the association of an advertisement is not sufficient to provide an inventive concept. *See Ultramercial*, 772 F.3d at 715 (finding no inventive concept in an eleven step method, which included a step of “selecting a sponsor message to be associated with the media product,” because the claimed method “comprise[ed] only conventional steps specified at a high level of generality.”) (internal quotations omitted). Furthermore, limiting the claims to a particular technological environment,

such as computer networks or a web page, does not provide an inventive concept. *See Internet Patents*, 790 F.3d at 1348–49 (“siting the ineligible concept in a particular technological environment” was not sufficient to provide an inventive concept); *Content Extraction*, 776 F.3d at 1348 (“At most . . . [the] claims attempt to limit the abstract idea of recognizing and storing information from hard copy documents using a scanner and a computer to a particular technological environment . . . [which] has been held insufficient to save a claim in this context”). Additionally, as discussed above, the claims merely automate what a person could do manually with a general purpose computer. But automation also cannot save the claims from patent-ineligibility. *See OIP Techs.*, 788 F.3d at 1363 (“At best, the claims describe the automation of the fundamental economic concept of offer-based price optimization through the use of generic-computer functions. . . . But relying on a computer to perform routine tasks more quickly or more accurately is insufficient to render a claim patent eligible.”).

Notwithstanding VideoShare’s arguments to the contrary, the claims of the ’608 and ’302 patents are also distinguishable from *DDR Holdings*. The invention in *DDR Holdings* “address[ed] the problem of retaining website visitors that, if adhering to the routine, conventional functioning of Internet hyperlink protocol, would be instantly transported away from a host’s website after ‘clicking’ on [a third-party’s] advertisement” 773 F.3d at 1257. When clicking on this advertisement, instead of transporting the user to a third party webpage, the patent claims instead called for directing the user to an “automatically-generated hybrid webpage that combines visual ‘look and feel’ elements from the host website and product information from the third-party webpage.” *Id.* The claims were “necessarily rooted in computer technology” and specified “how interactions with the Internet are manipulated to yield a desired result . . . that overrides the routine and conventional sequence of events ordinarily triggered by the click of a hyperlink.” *Id.* at 1258.

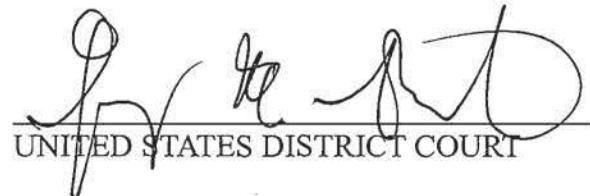
In contrast, as Google notes, the instant claims “merely use conventional computer and Internet functions to implement the abstract idea,” rather than “address[ing] any Internet-centric technical challenge.” (D.I. 85 at 18–19.) The instant claims require a series of conventional steps that could be done on a general purpose computer by a human to instead be done in an automated fashion on a receiving computer via the Internet. In this regard, manually following the claimed conventional steps does not lead to an unconventional result, and, as discussed above, automation of these conventional steps does not save the patents from ineligibility. In this way, unlike *DDR Holdings*, the instant claims do nothing more than conform to the routine and conventional.

None of the dependent claims in either the ’608 or ’302 patents adds anything that would free those claims from the domain of abstraction. Specifically, the dependent claims recite additional conventional features, such as “upload form,” “wireless networking connection,” “URL,” and “plurality of computing devices,” that do not render the claims non-abstract when considered alone or as an ordered combination. VideoShare makes no attempt to identify any inventive concepts in the dependent claims. (D.I. 107 at 18–19.)

V. CONCLUSION

The court concludes that the asserted claims of the ’608 and ’302 patents are not eligible for patent protection under 35 U.S.C. § 101. The court will grant Google’s Motion for Judgment on the Pleadings. (D.I. 84.)

Dated: August 2, 2016



UNITED STATES DISTRICT COURT

Exhibit A

US008438608B2

(12) United States Patent
Liwerant et al.(10) Patent No.: US 8,438,608 B2
(45) Date of Patent: *May 7, 2013

(54) SHARING A STREAMING VIDEO

(75) Inventors: **Gad Liwerant**, Cambridge, MA (US); **Christopher Dodge**, Arlington, MA (US); **Guillaume Boissiere**, Cambridge, MA (US)(73) Assignee: **VideoShare, LLC**, Chestnut Hill, MA (US)

(*) Notice: Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 74 days.

This patent is subject to a terminal disclaimer.

(21) Appl. No.: 13/175,688

(22) Filed: Jul. 1, 2011

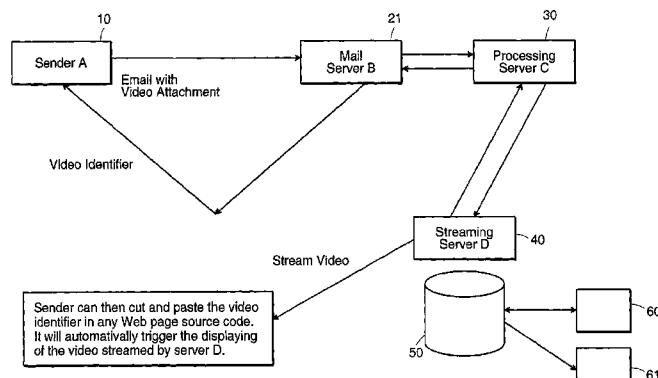
(65) Prior Publication Data

US 2011/0265136 A1 Oct. 27, 2011

Related U.S. Application Data

(63) Continuation of application No. 11/927,806, filed on Oct. 30, 2007, now Pat. No. 7,987,492, which is a continuation of application No. 09/803,243, filed on Mar. 9, 2001, now abandoned.

(60) Provisional application No. 60/188,082, filed on Mar. 9, 2000.

(51) Int. Cl.
H04N 7/173 (2011.01)

(52) U.S. Cl.

USPC 725/115; 725/86; 725/87; 725/91;
725/92; 725/98; 725/105; 725/109; 725/112;
725/114(58) Field of Classification Search 725/86-115
See application file for complete search history.

(56)

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XP-002150023 "Streaming Email" Chapter 18, pp. 303-3017, Sep. 4, 1998.*

* cited by examiner

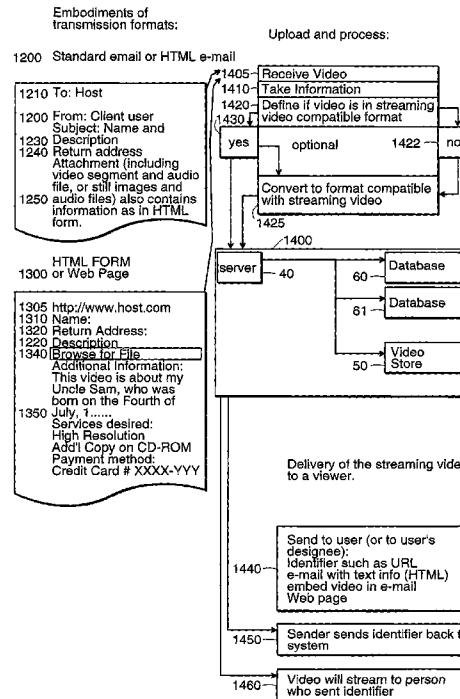
Primary Examiner — Dominic D Saltarelli

(74) Attorney, Agent, or Firm — Guerin & Rodriguez, LLP

(57) ABSTRACT

A video segment can be shared over a computer network by first receiving the video segment at a receiving computer on the network. The receiving computer assures that the video segment is in a streaming video format, and creates at least one identification tag for the video segment. The receiving computer also stores the video segment, and communicates the identification tag to another computer on the network. Upon subsequent receipt of that identification tag, the receiving computer streams the video segment to a destination computer on the network.

23 Claims, 16 Drawing Sheets



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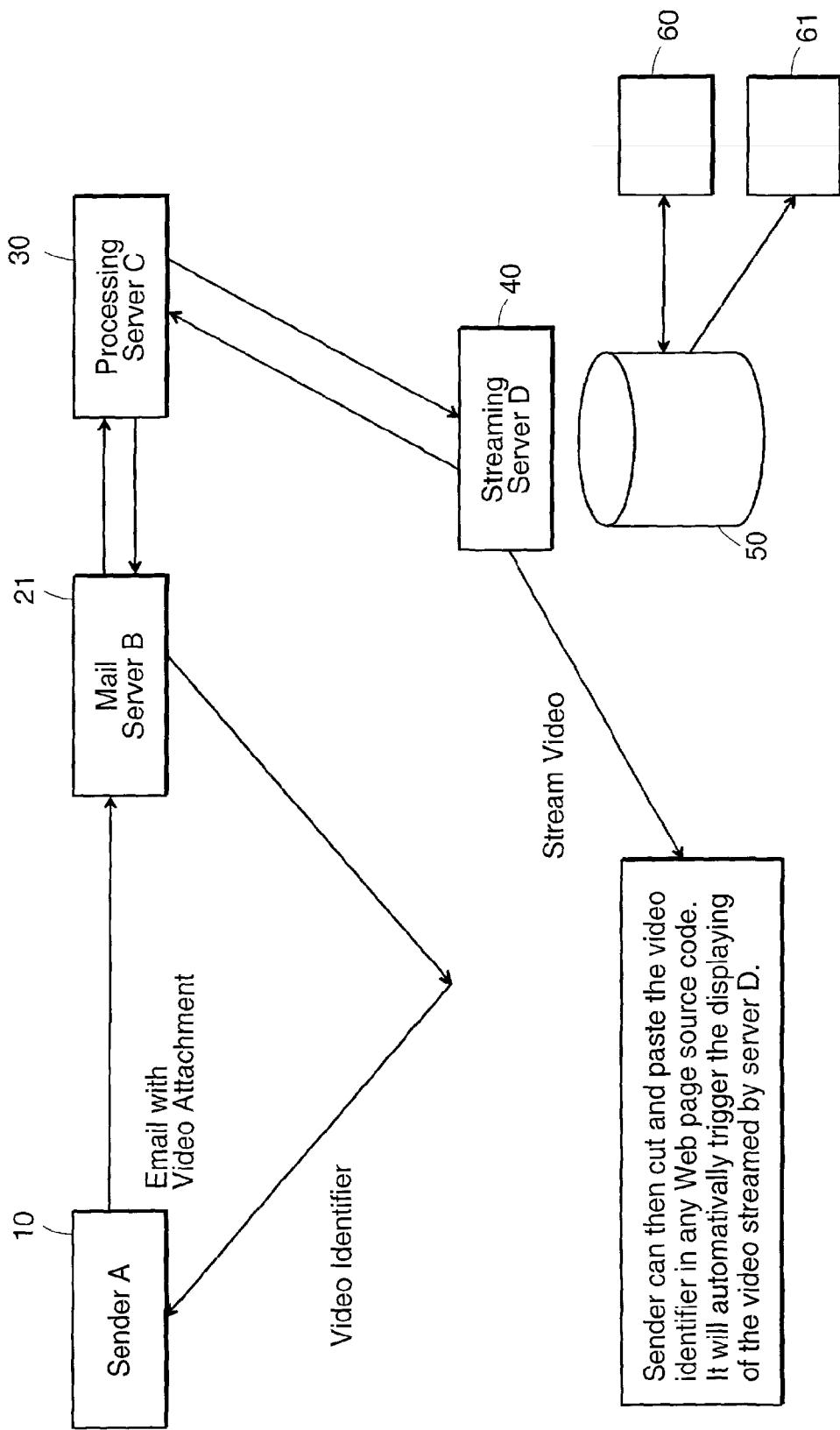


FIG. 1A

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Embodiments of transmission formats:

1200 Standard email or HTML e-mail

1210 To: Host
 1200 From: Client user
 Subject: Name and
 1230 Description
 1240 Return address
 Attachment (including
 video segment and audio
 file, or still images and
 1250 audio files) also contains
 information as in HTML
 form.

HTML FORM
 1300 or Web Page

1305 http://www.host.com
 1310 Name:
 1320 Return Address:
 1220 Description
 1340
 Additional Information:
 This video is about my
 Uncle Sam, who was
 born on the Fourth of
 1350 July, 1.....
 Services desired:
 High Resolution
 Add'l Copy on CD-ROM
 Payment method:
 Credit Card # XXXX-YYYY

Upload and process:

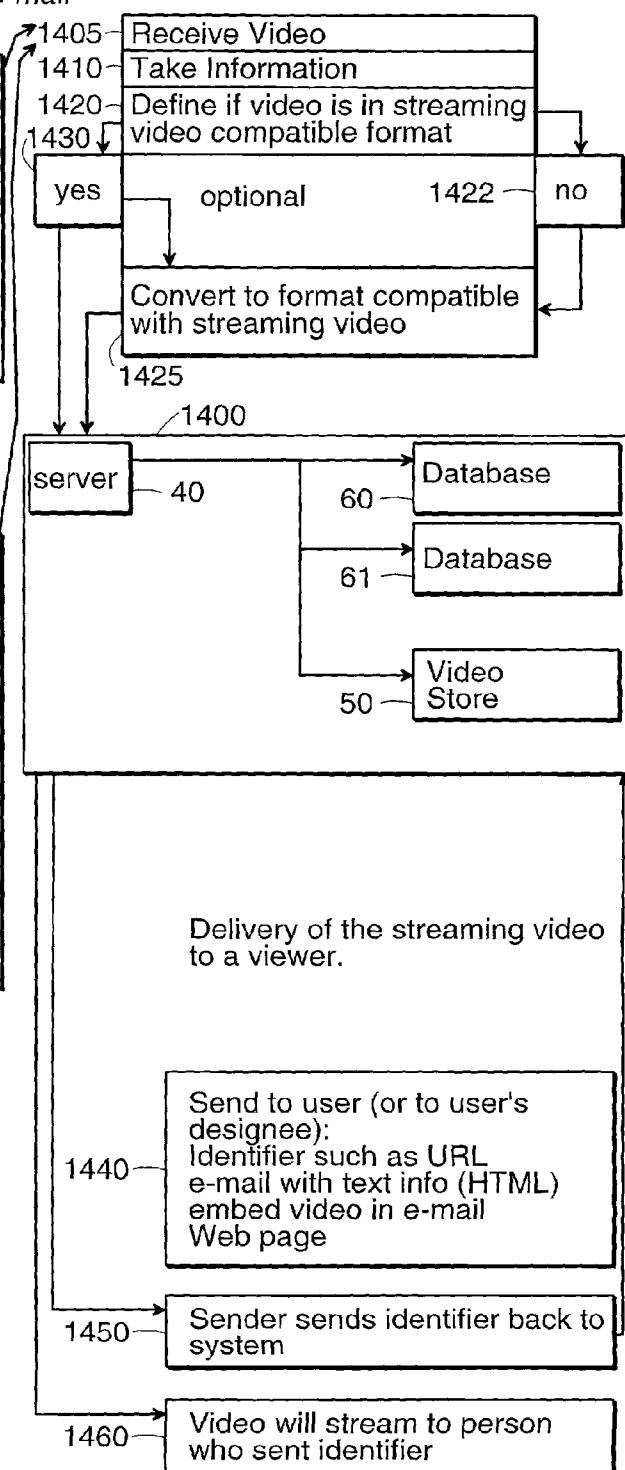


FIG. 1B

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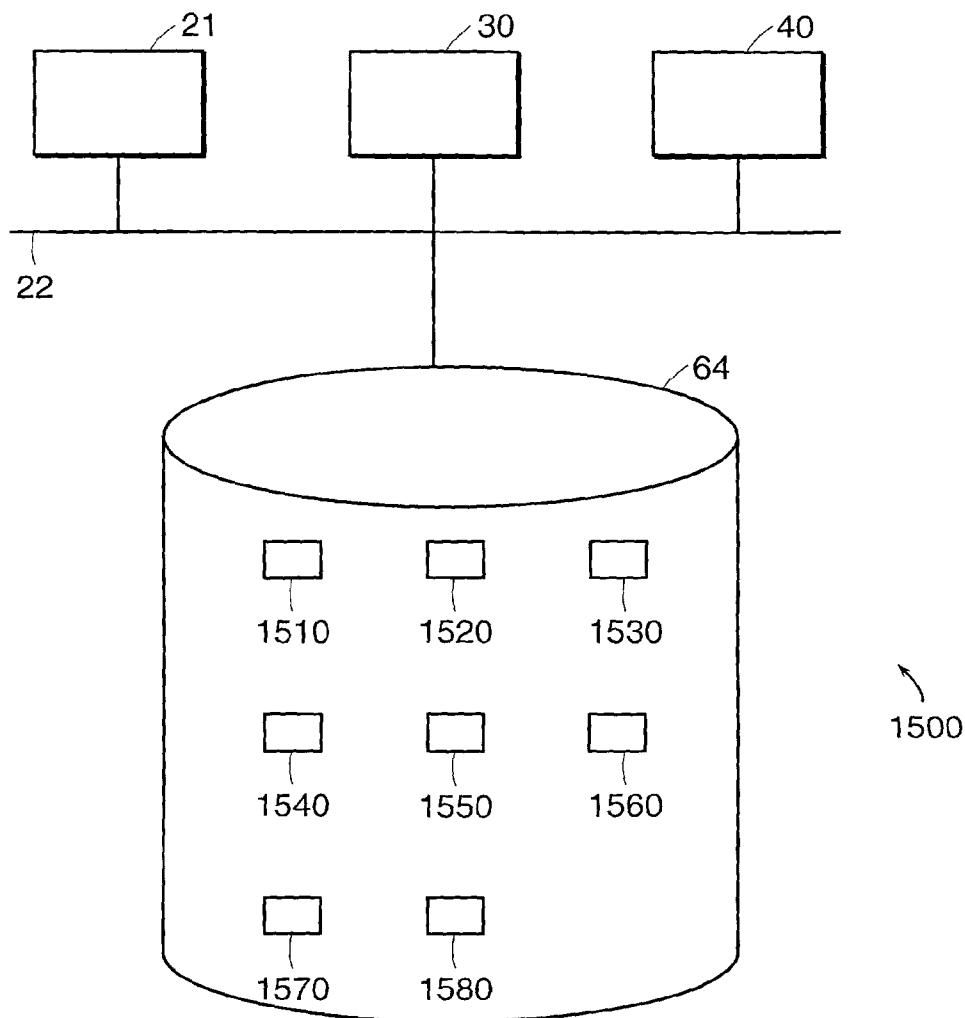


FIG. 1C

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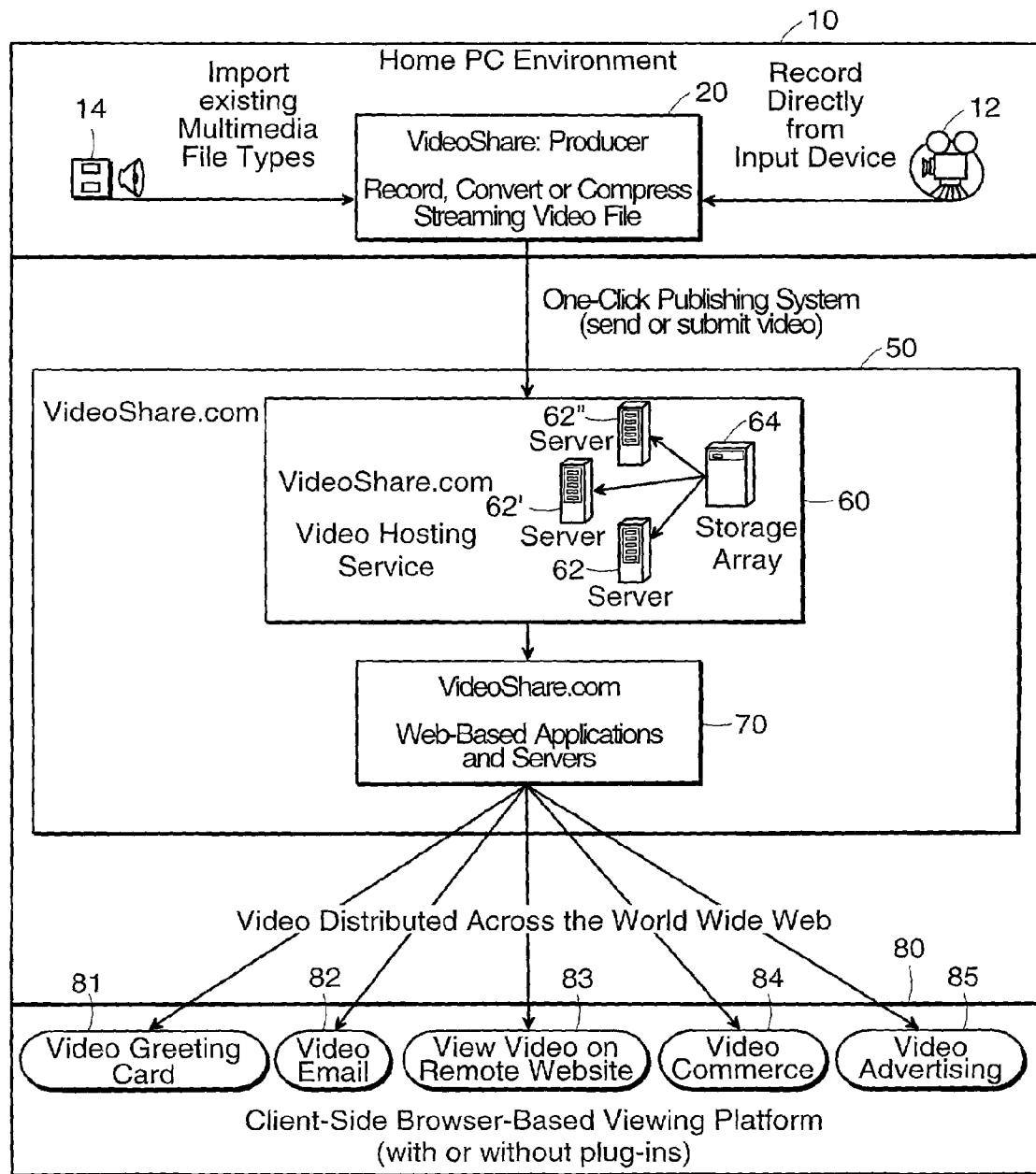


FIG. 1D

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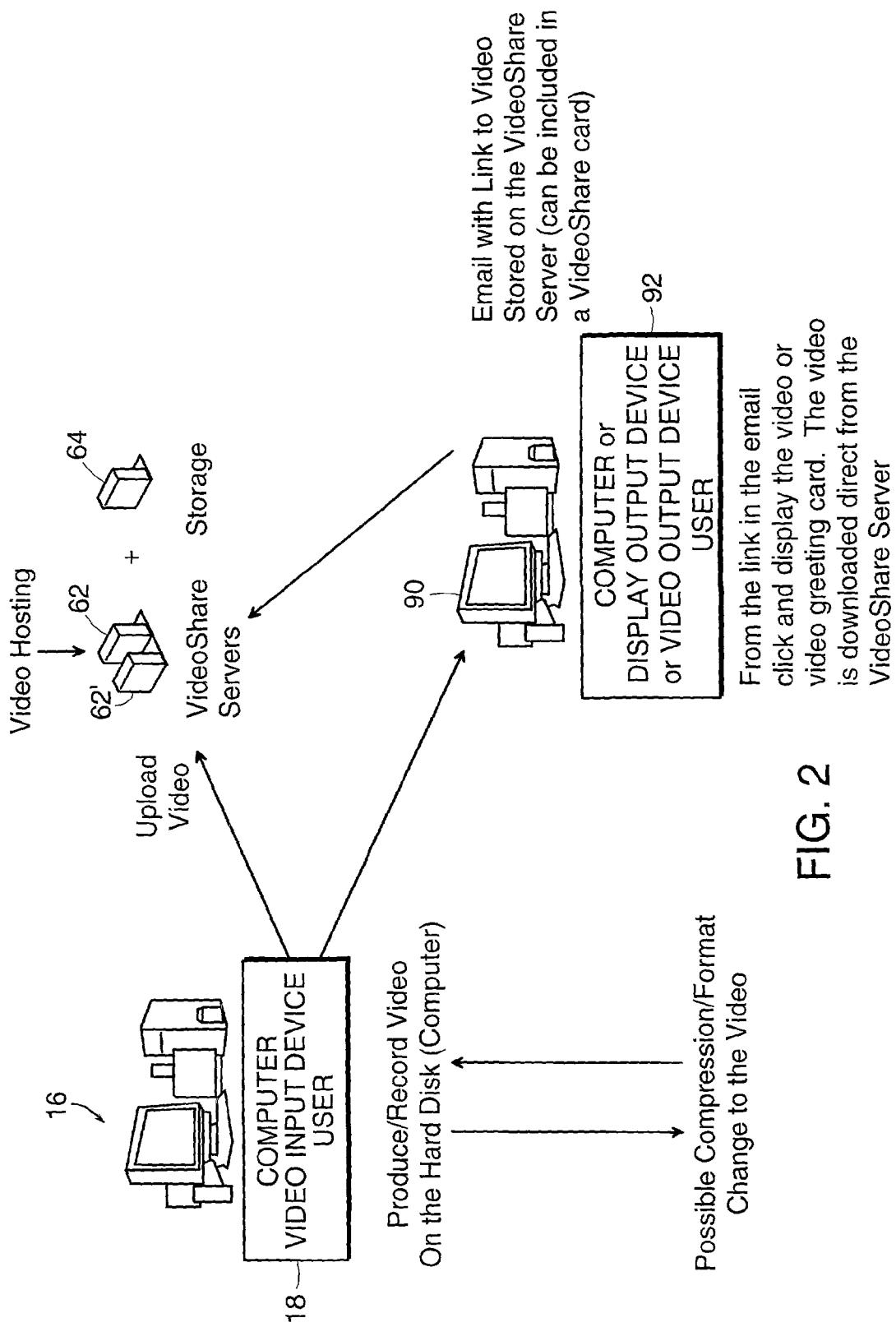


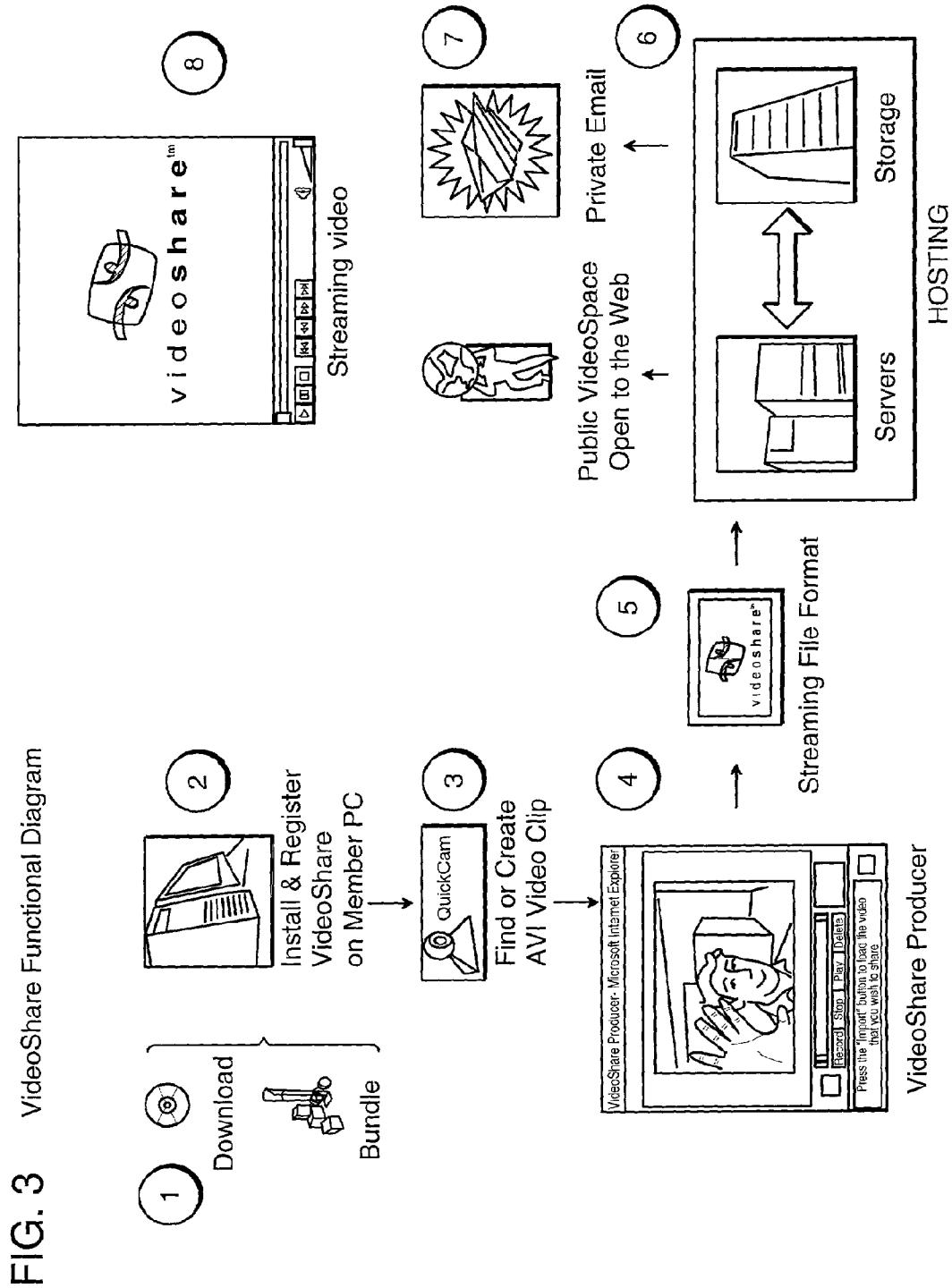
FIG. 2

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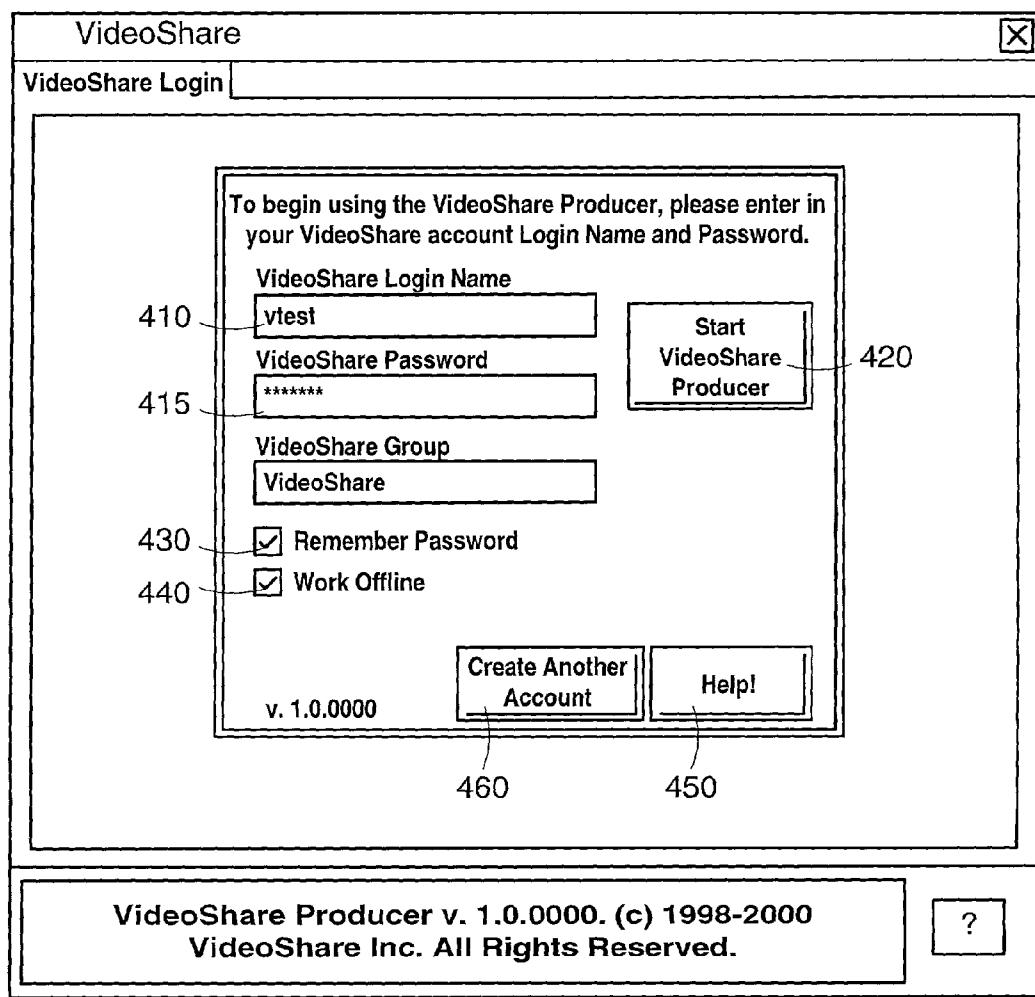


FIG. 4

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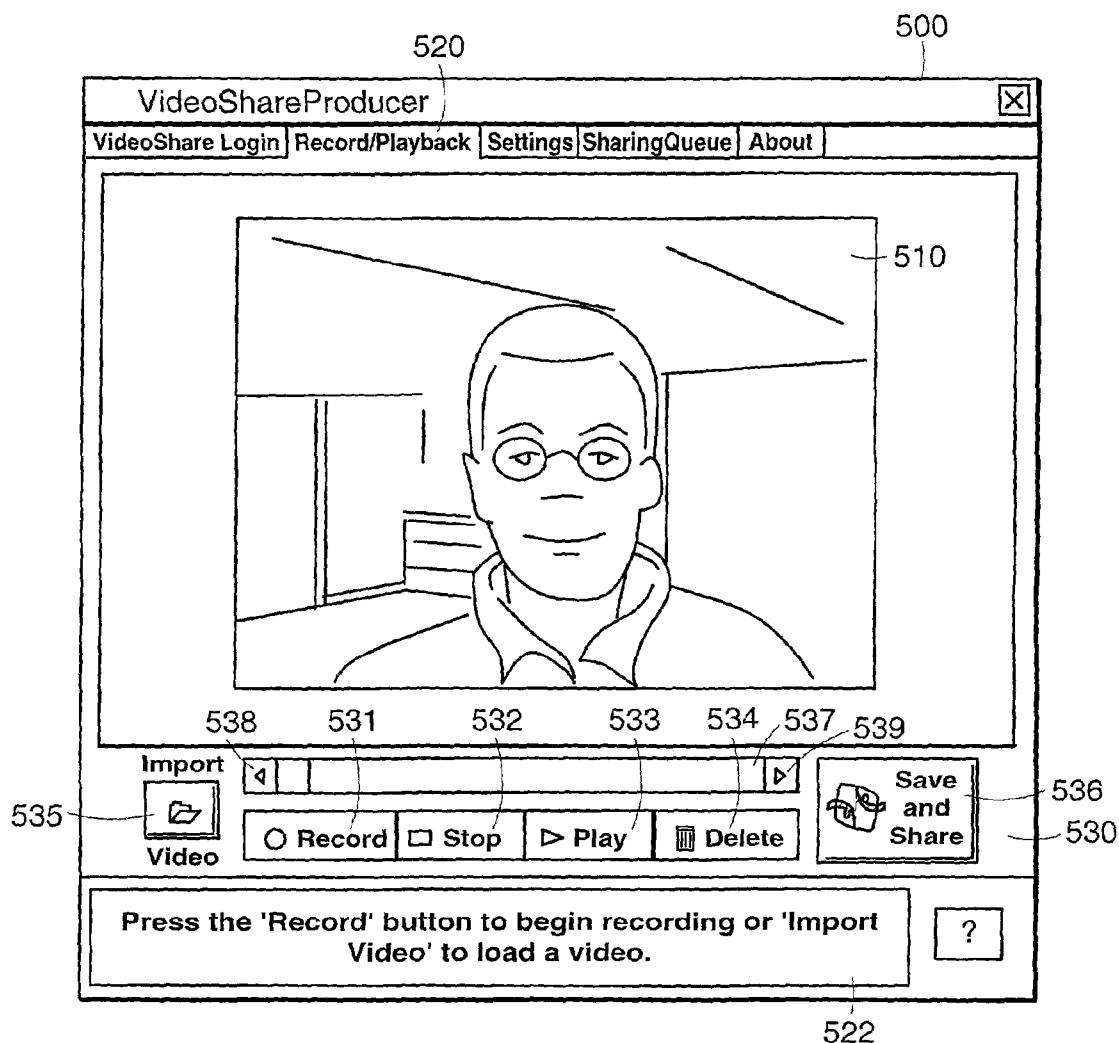


FIG. 5

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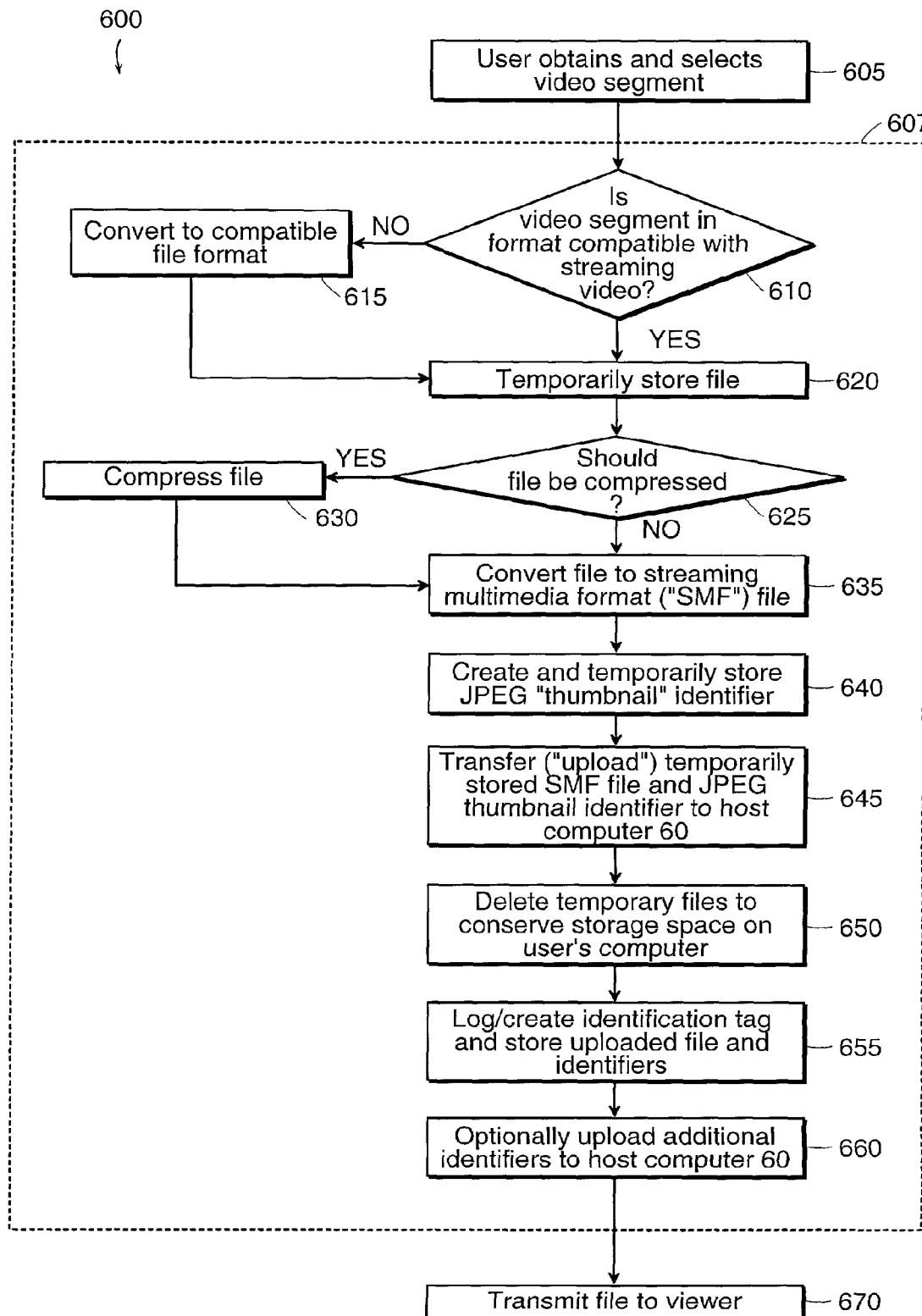


FIG. 6A

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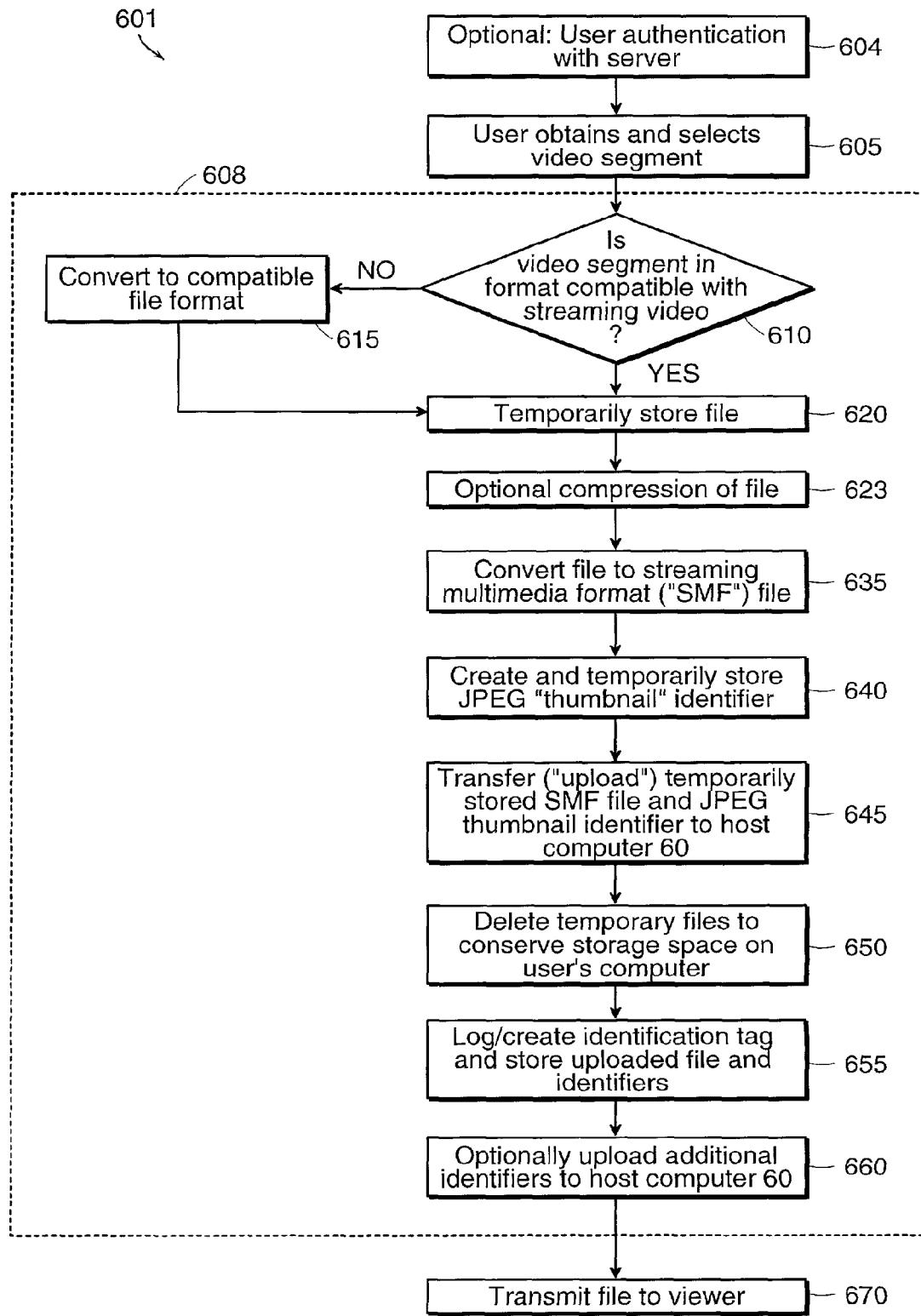


FIG. 6B

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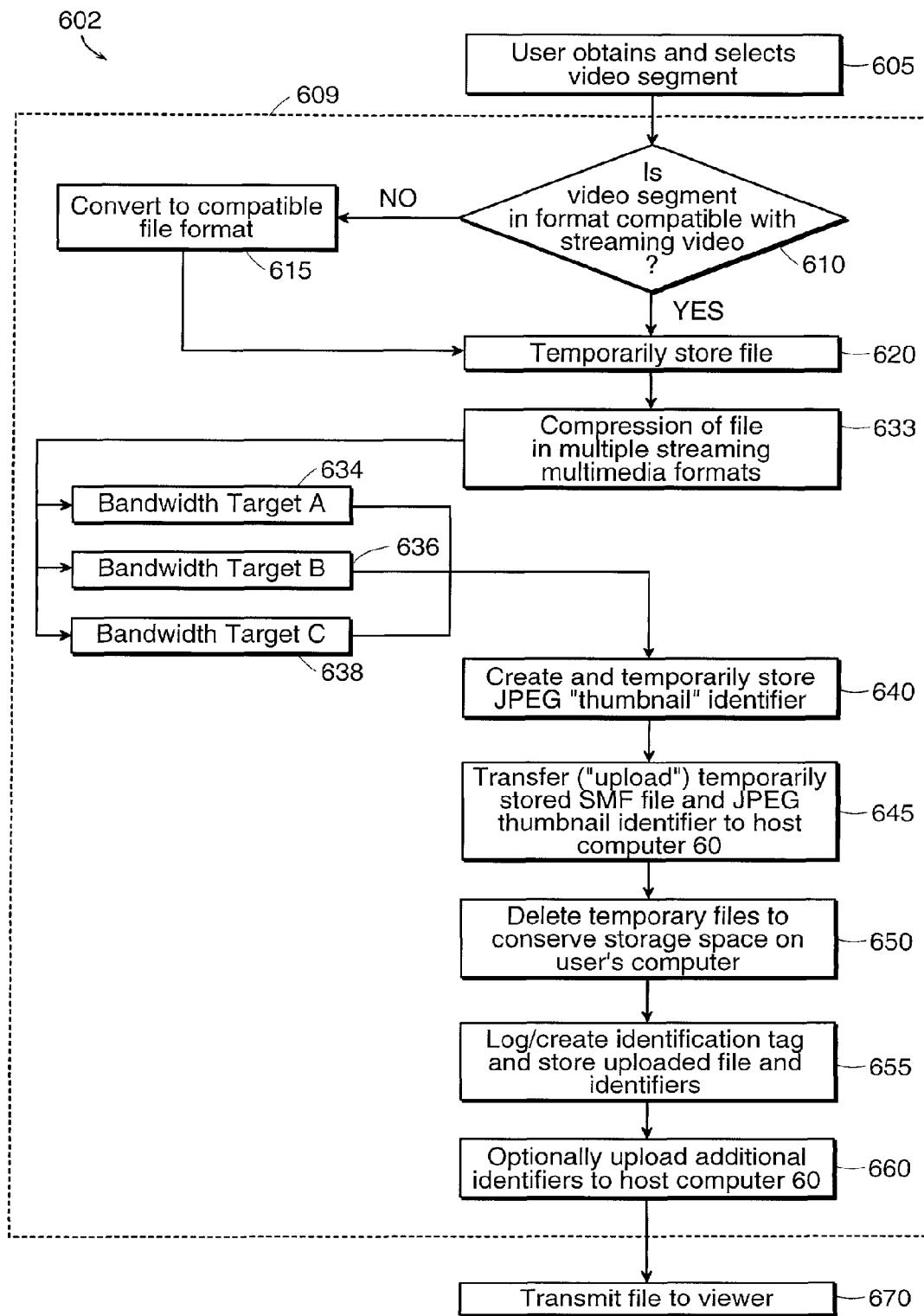


FIG. 6C

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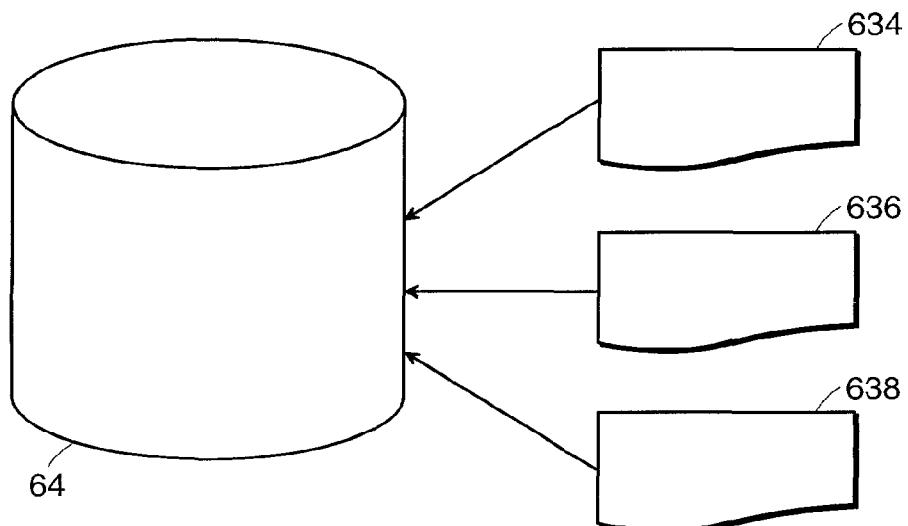


FIG. 6D

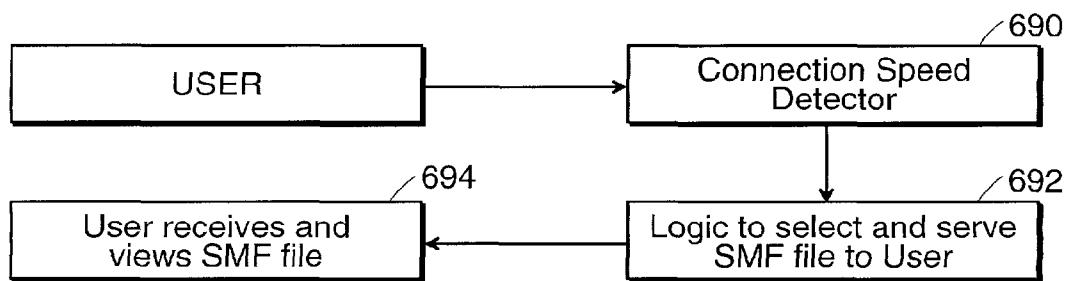


FIG. 6E

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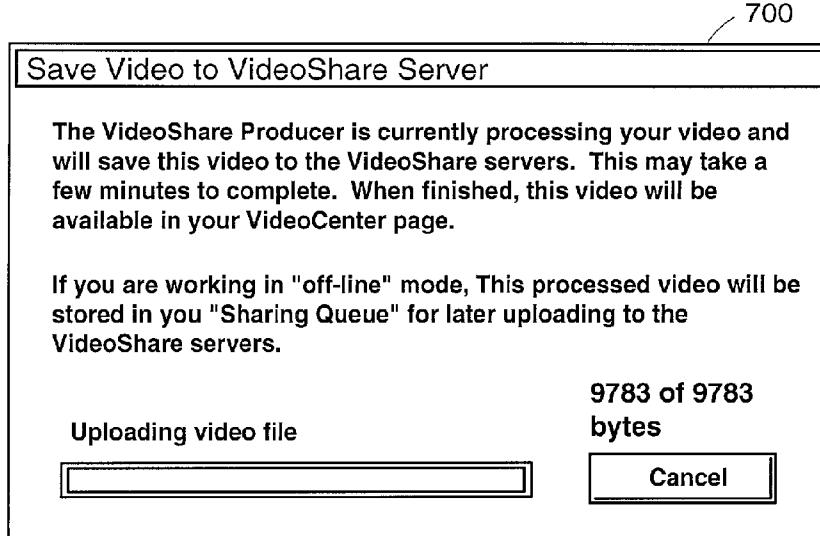


FIG. 7

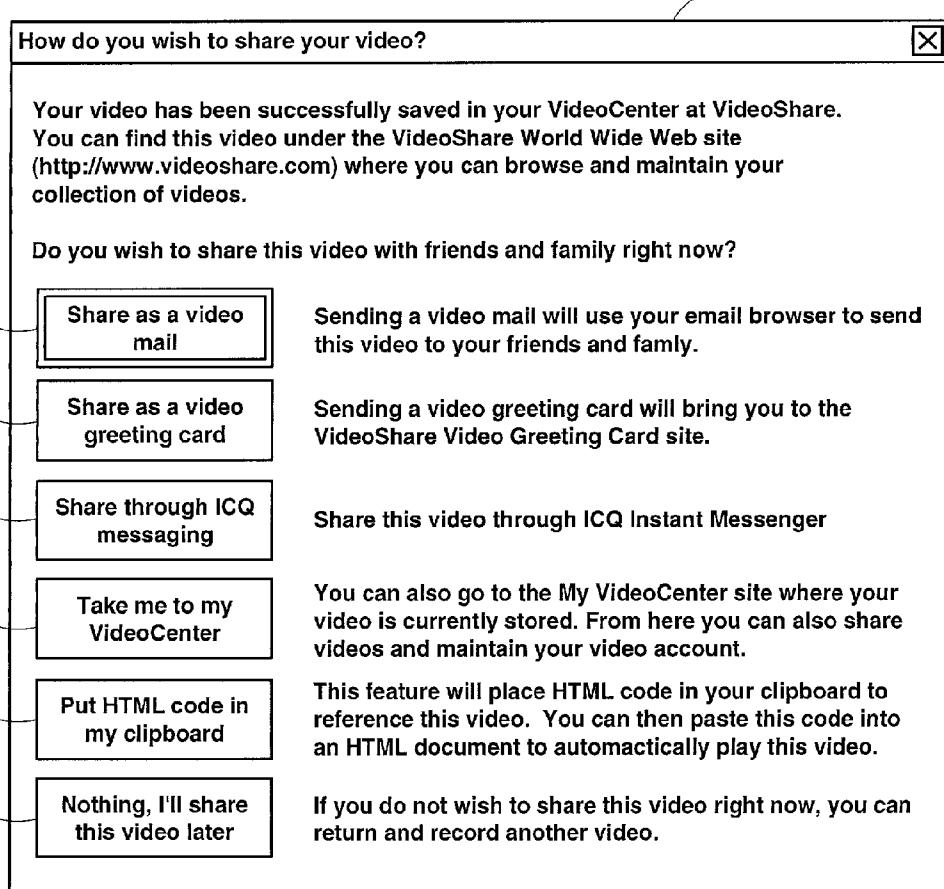


FIG.8

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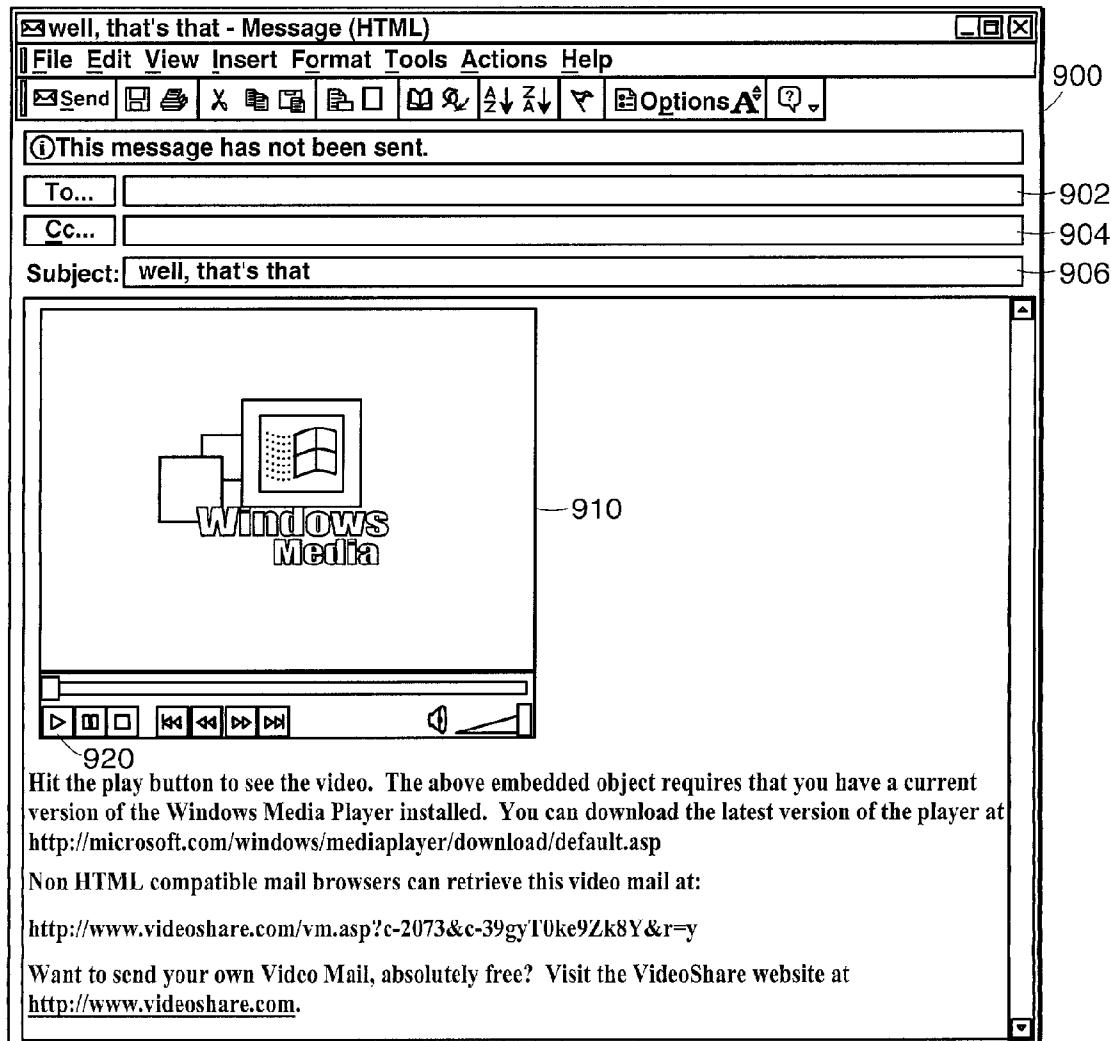


FIG. 9

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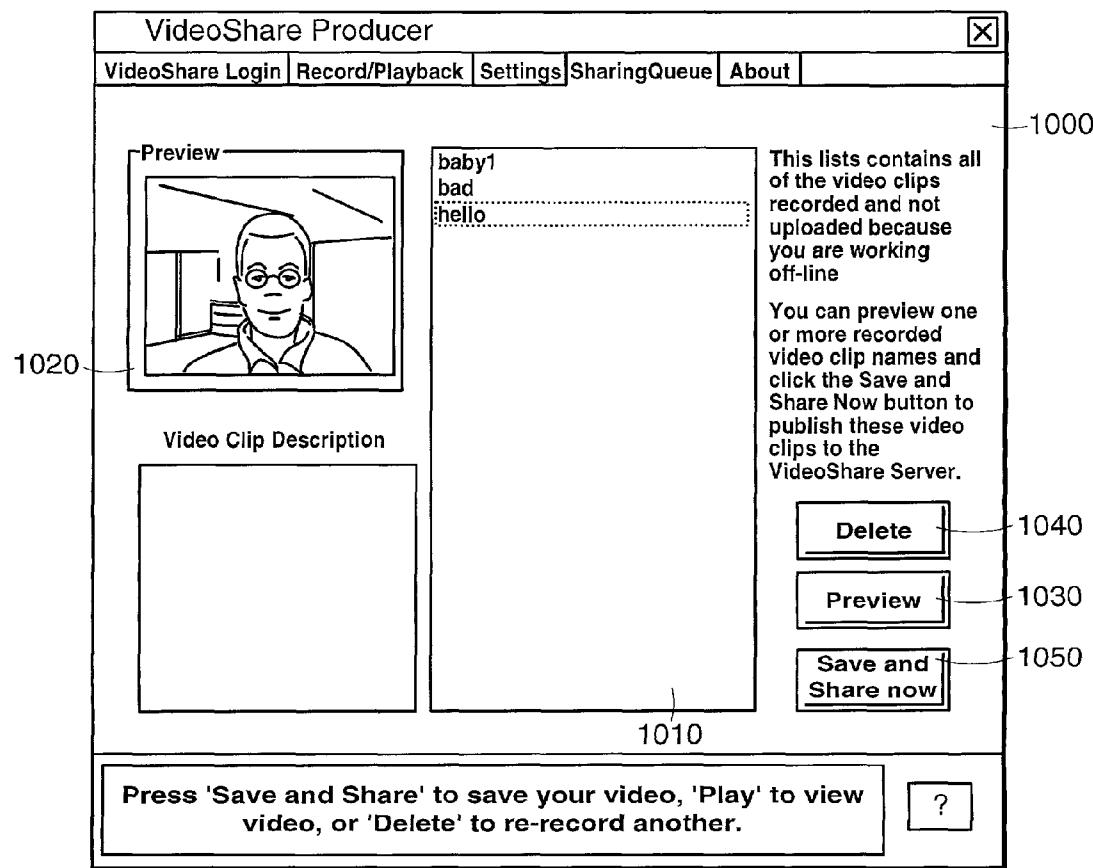


FIG. 10

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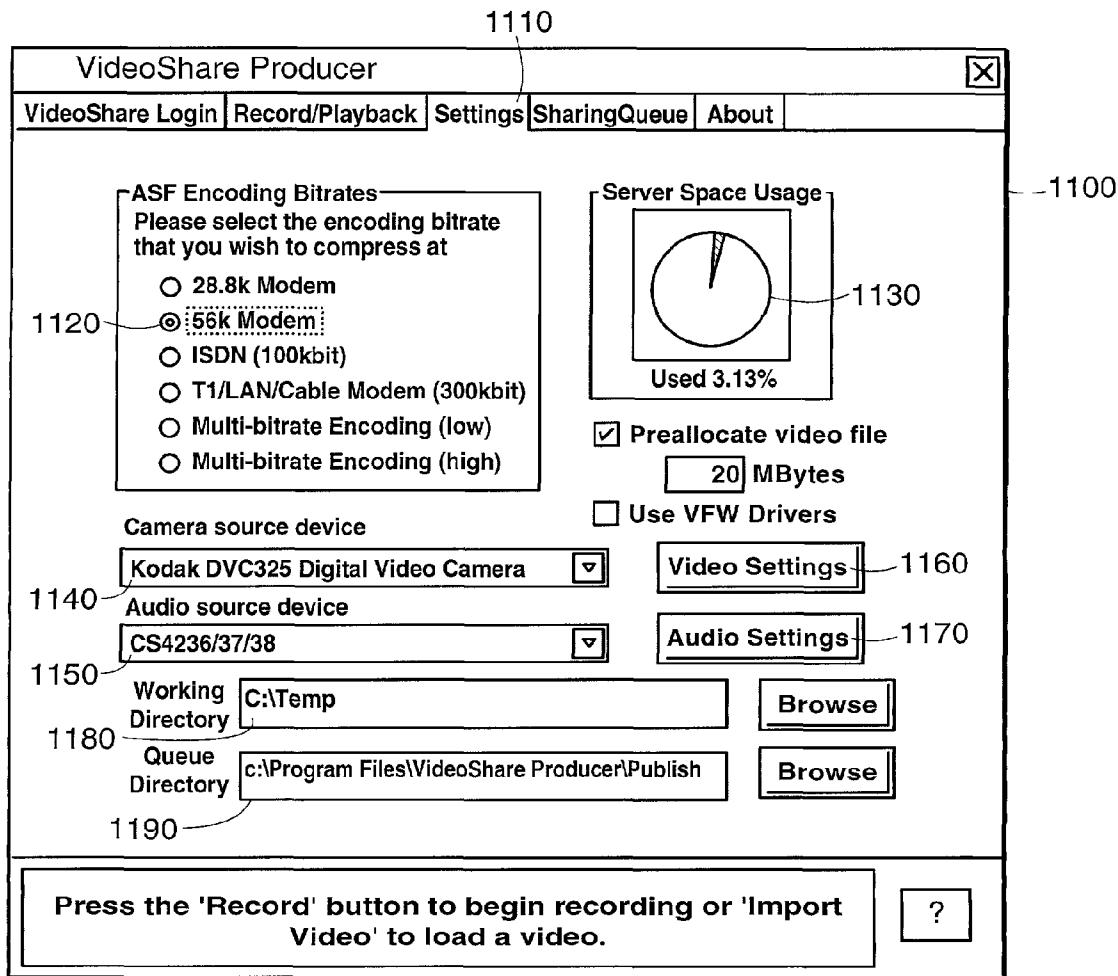


FIG. 11

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1**SHARING A STREAMING VIDEO****CROSS-REFERENCE TO RELATED APPLICATIONS**

This application claims priority to and is a continuation of U.S. patent application Ser. No. 11/927,806, entitled "SHARING A STREAMING VIDEO", filed Oct. 30, 2007 which claims priority to and is a continuation of U.S. patent application Ser. No. 09/803,243, entitled "SHARING A STREAMING VIDEO", filed Mar. 9, 2001, which benefits and claims priority to provisional U.S. patent application No. 60/188,082, entitled "SHARING A STREAMING VIDEO", filed Mar. 9, 2000, the entirety of which are incorporated herein by reference.

TECHNICAL FIELD

This invention relates generally to the distribution of video segments. More particularly, the invention relates to sharing video in streaming video format over a network.

BACKGROUND INFORMATION

A video can be sent over a computer network as a file attachment to an electronic mail (e-mail) message. With this type of transmission, the entire video file must be transmitted and received before the receiver can view the video. For large files, the time required to complete such transmissions can be longer than the actual playing time of the video. Also, this type of transmission typically requires multiple computer programs to perform all of the necessary functions, including an e-mail application program to send or receive the video in computer file form, and a second program to play or display the video from the received file attachment. With this type of transmission, it is difficult to control the delivery time of the video, and it is difficult to share or forward the received video.

A video can be posted to a World Wide Web ("Web") page. In order to provide a video in this manner, a server computer connected to the Web must be used to host the Web site, and software packages must exist and be used to prepare the video, and transmit it over the Web using the File Transfer Protocol (FTP or ftp) or the HyperText Transfer Protocol (HTTP or http). To implement this type of video posting, at least a detailed knowledge of various computer communication protocols is required.

SUMMARY

It is an object of this invention to provide methods and systems for sharing video segments over a network. It is another object of this invention to provide a user with the ability to upload automatically a video segment over a network onto a server, without any specialized skill or knowledge on the part of the user. It also is an object of the invention to store the automatically uploaded video segment either on the server or remotely. The stored segment can then be streamed over the network, for example the Internet, to a destination computer such that a person at that destination computer can view the video segment.

In accordance with the present invention, full motion video can be automatically uploaded to a video server and then accessed by any number of viewers after each viewer has been provided with an identifier of the video. The video identifier can in general be an identification tag which identifies where and/or how the video can be accessed, for example a network address, or a universal resource locator ("URL"). The video

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can also be identified with an image that represents the content or subject matter of the video, so that the video can readily be identified when held in a collection of videos. Such identifiers as file names that are useful in a computer file processing, storage and retrieval system can further identify the video. In addition or alternatively, the invention can employ such identifiers as a file handle, a storage location, an interactive control, and a control object operating according to the Component Object Model (COM).

10 In one aspect, the invention relates to a method of sharing a video segment over a computer network. The network includes a receiving computer and a plurality of other computers including a destination computer. The method includes the steps of (a) receiving at the receiving computer the video segment sent over the computer network from one of the plurality of other computers; (b) performing automatically at the receiving computer, in response to a command received over the network, the steps of (b1) assuring that the video segment is in a streaming video format; (b2) creating at least 15 an identification tag for the video segment to identify the video segment; (b3) storing the video segment under the control of the receiving computer in the streaming video format; and (b4) returning the identification tag to the one of the plurality of other computers; (c) receiving the identification tag at the receiving computer; and (d) in response to the receipt of the identification tag at the receiving computer, streaming the video segment in the streaming video format over the network to the destination computer.

In one embodiment, the method further includes causing 30 the video segment to be displayed at the destination computer. In one embodiment, the video segment comprises an image with associated audio information. In one embodiment, the video segment comprises a still image. The computer network can include one of a wire connection, a cellular communication connection, a wireless networking connection, and a terrestrial satellite communication connection.

In one embodiment, step (a) comprises receiving the video segment which includes an identifier. In one embodiment, the identifier comprises a selected one of an image, a file handle, 40 a storage location, an address, a Universal Resource Locator (URL), a file name, an interactive control, and a control object operating according to the Component Object Model (COM). In one embodiment, step (a) comprises receiving the video segment which is sent in association with an electronic mail message. In one embodiment, step (a) comprises receiving the video segment which is sent in association with a HyperText Markup Language (HTML) mail message. In one embodiment, step (a) comprises receiving the video segment which is sent in association with an upload form residing on a World Wide Web (Web) page. In one embodiment, step (a) comprises receiving the video segment which is sent in association with a File Transfer Protocol (FTP) transfer. In one embodiment, step (a) comprises receiving the video segment which includes information supplied by a sender at the one of 55 the plurality of other computers. The information can include information describing a streaming format into which the receiving computer converts the video segment. The information can include an identification of the sender. In one embodiment, the identification of the sender comprises a proper name. In one embodiment, the identification of the sender comprises a username. In one embodiment, the identification of the sender comprises a password.

In one embodiment, the information comprises a return address of the sender. The return address can be an e-mail address. In one embodiment, the information comprises an identifier of the video segment. The identifier can be a title. The identifier can be a name. The identifier can be a date the

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video segment was produced. The identifier can be a location relating to the video segment. The identifier can be a subject relating to the video segment.

In one embodiment, the information comprises a comment about the video segment. In one embodiment, the information comprises a period of time during which the video segment will be available. In one embodiment, the information comprises information relating to a priority order of processing a video segment by the receiving computer.

In one embodiment, the information comprises an instruction for transmittal of a response. The instruction can include a formatting instruction. The instruction can include a speed of transmission. The instruction can include a transmission protocol to be used. The instruction can include a format of a physical medium to be used in sending a physical machine-readable copy of the video segment. The instruction can include a resolution of the video segment. The instruction can include an image quality of the video segment. The instruction can include a display format of the video segment on a destination computer.

In one embodiment, the information comprises financial information. The financial information can include a credit card number. The financial information can include a financial account identifier.

In one embodiment, step (b1) comprises converting the video segment, if it is not in a streaming video format at the time of receipt by the receiving computer, to a streaming video format, independent of a received command to perform such conversion. In one embodiment, step (b1) comprises automatically converting the video segment from a first streaming video format characteristic of the video segment upon receipt at the receiving computer to a second streaming video format.

In one embodiment, the method further comprises queuing a second video segment and a command transmitted with the second video segment for processing by the receiving computer according to steps (b) through (d) in the event that the receiving computer is performing any of steps (b) through (d) in response to receipt of a first video segment. In one embodiment, the method further comprises providing to a sender of a video segment an estimate of a duration of the required processing time for the conversion of the video segment. The estimate is provided prior to performing any of steps (b) through (d).

In one embodiment, the method further comprises providing to the destination computer of a video segment an estimate of a duration of the required processing time for the conversion of the video segment. In one embodiment, the video segment is converted into multiple video formats. The multiple video formats can include a format not compatible with streaming video. In one embodiment, the identification tag received by the destination computer is communicated by the receiving computer in association with one of an electronic mail message, an HTML electronic mail message, and an instant message. The identification tag can be a hyperlink provided in the message sent to the destination computer, the hyperlink pointing to a Web page that causes the streaming of the video. In one embodiment, the video segment in streaming video format is streamed from the receiving computer as information embedded in a message. In one embodiment, in response to the receipt of the identification tag at the receiving computer, the video segment in a first streaming video format is converted into a video segment in a second streaming format by the receiving computer, and the video segment in the second video format is streamed to the destination computer. In one embodiment, the receiving computer streams the video segment in a format of the available streaming video

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formats, the format based on a selected one of the receiving computer responding to user settings at the destination computer, the receiving computer responding to display software installed on the destination computer, the receiving computer responding to information received in association with the receipt of the identification tag, and the receiving computer determining an optimal viewing format for the destination computer of the formats available. In one embodiment, the receiving computer sends to the destination computer a video segment that is not in streaming format prior to the display of the video segment.

In another aspect, the invention features a computerized system for sharing a video over a computer network, comprising a receiving computer for communicating with one or more other computers over a computer network including a destination computer, the receiving computer receiving a video segment from at least one of the one or more other computers, the receiving computer responsive to a communication from the one or more other computers that can activate the receiving computer automatically, the receiving computer comprising: (i) a control module that controls a memory, the memory capable of holding computer instructions and data; (ii) a receiving module that receives a message associated with the video segment sent from the at least one of the one or more other computers; (iii) an analyzer module that determines whether the video segment is in a streaming video format; (iv) a format conversion module that converts a format of the video segment to a format that is compatible with streaming video; (v) a storage module that stores the video segment in streaming video format in the memory module; (vi) an identification module that creates the identification tag identifying the video segment in streaming video format stored in the memory module; (vii) a transmitter module that transmits over the network the identification tag to a computer of the one or more other computers; and (viii) a sharing module that streams the video segment in streaming video format to the destination computer in response to a return of the identification tag to the receiving computer.

In one embodiment, the system further comprises an extraction module that extracts from the received message the video segment and information sent with the video segment. In one embodiment, the information sent with the video segment comprises an identity of the user of the computer of the one or more other computers. In one embodiment, the information sent with the video segment comprises a return address of the user of the computer of the one or more other computers. In one embodiment, the information sent with the video segment comprises a title of the video segment. In one embodiment, the information sent with the video segment comprises an identifier of the video segment. In one embodiment, the information sent with the video segment comprises a subject of the video segment. In one embodiment the information sent with the video segment comprises a date of creation of the video segment. In one embodiment, the information sent with the video segment comprises a description of the video segment.

In one embodiment, the analyzer module that determines whether the video segment is in a streaming video format determines if the video segment is in QuickTime format. In one embodiment, the analyzer module that determines whether the video segment is in a streaming video format determines if the video segment is in ASF format. In one embodiment, the analyzer module that determines whether the video segment is in a streaming video format determines if the video segment is in WMF format. In one embodiment, the analyzer module that determines whether the video segment is in a streaming video format determines if the video

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segment is in MPEG format. In one embodiment, the analyzer module that determines whether the video segment is in a streaming format determines if the video segment is in Real Networks (Real) format. In one embodiment, the analyzer module that determines whether the video segment is in a streaming format determines if the video segment is in AVI format.

In one embodiment, the format conversion module that converts a format of a video segment from a format that is not compatible with streaming video to a format that is compatible with streaming video comprises a format conversion module that creates a Direct Show filter graph that decompresses the video file into an uncompressed AVI format file.

In one embodiment, the identification module that creates an identification tag identifying the video segment in streaming video format stored in the memory module comprises a module that selects a video frame from the video segment in streaming video format. In one embodiment, the identification module that creates an identification tag identifying the video segment in streaming video format stored in the memory module comprises a module that identifies a location where the video segment is stored. In one embodiment, the identification module that creates an identification tag identifying the video segment in streaming video format stored in the memory module comprises a module that identifies how the video segment can be accessed. In one embodiment, the identification module that creates an identification tag identifying the video segment in streaming video format stored in the memory module comprises a module that provides an image that represents the subject matter of the video segment. In one embodiment, the identification module that creates an identification tag identifying the video segment in streaming video format stored in the memory module comprises a module that generates a file name.

In one embodiment, the transmitter module that transmits over the network the identification tag to at least one computer of the one or more other computers comprises a module that transmits the identification tag using an electronic mail message communication protocol. In one embodiment, the transmitter module that transmits over the network the identification tag to at least one computer of the one or more other computers comprises a module that transmits the identification tag using a HyperText Markup Language (HTML) mail message communication protocol. In one embodiment, the transmitter module that transmits over the network the identification tag to at least one computer of the one or more other computers comprises a module that transmits the identification tag using an upload form residing on a World Wide Web (Web) page. In one embodiment, the transmitter module that transmits over the network the identification tag to at least one computer of the one or more other computers comprises a module that transmits the identification tag using a File Transfer Protocol (FTP) transfer.

In one embodiment, the sharing module that streams the video segment in streaming video format to one computer of the one or more other computers in response to a return of the identification tag comprises a module that streams the video segment to a specified computer. In one embodiment, the sharing module that streams the video segment in streaming video format to one computer of the one or more other computers in response to a return of the identification tag comprises a module that streams the video segment at a selected bitrate. In one embodiment, the sharing module that streams the video segment in streaming video format to one computer of the one or more other computers in response to a return of the identification tag comprises a module that streams the video segment at a selected transmission quality. In one

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embodiment, the sharing module that streams the video segment in streaming video format to one computer of the one or more other computers in response to a return of the identification tag comprises a module that streams the video segment at a selected performance level. In one embodiment, the sharing module that streams the video segment in streaming video format to one computer of the one or more other computers in response to a return of the identification tag comprises a module that streams the video segment in a selected format.

The foregoing and other objects, aspects, features, and advantages of the invention will become more apparent from the following description and from the claims.

BRIEF DESCRIPTION OF THE FIGURES

The objects and features of the invention can be better understood with reference to the drawings described below, and to the claims. The drawings are not necessarily to scale, emphasis instead generally being placed upon illustrating the principles of the invention. In the drawings, like numerals are used to indicate like parts throughout the various views.

FIG. 1A is a diagram of an embodiment of the invention, showing the relationships between the components and their interactions with each other and with a sender and a viewer.

FIG. 1B shows illustrative embodiments of the invention, and describes the activities that occur in the various components.

FIG. 1C is a diagram showing software modules that are resident on one or more of the mail server B 21, the processing server C 30, and the streaming server D 40, according to an embodiment of the invention.

FIG. 1D shows an embodiment of a process and system according to the invention.

FIG. 2 is an embodiment of a system according to the invention, including the interactions and interrelationships within the system.

FIG. 3 is a functional block and flow diagram of an embodiment of the invention.

FIG. 4 is a login screen on a user's computer, in one embodiment of the invention.

FIG. 5 is a record/playback screen as seen by the user, in accordance with an embodiment of the invention.

FIG. 6A is a flow diagram of an embodiment of the invention in which software automates a number of steps in connection with the uploading of a video segment.

FIG. 6B is a flow diagram of another embodiment of the invention in which software automates a number of steps in connection with the uploading of a video segment.

FIG. 6C is a flow diagram of an embodiment of the invention in which software automates a number of steps in connection with the formatting of a video segment.

FIG. 6D shows the relationship of some of the files created in the flow diagram of FIG. 6C.

FIG. 6E is a flow diagram of a method by which an optimally formatted video segment is sent to a user according to the invention.

FIG. 7 is a screen as seen by the user, the screen indicating that file processing is occurring.

FIG. 8 is an interactive screen used to determine the desires of the individual who sends a video for storage.

FIG. 9 is a video playback screen seen by the user.

FIG. 10 is a screen used by the user to control the status of a video queue.

FIG. 11 is a screen used by the user to control the operational settings of equipment associated with the user's computer.

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DETAILED DESCRIPTION

In the description presented below, there are references to software and software modules. One of ordinary skill in the computer arts understands that any functionality that can be operable by the use of software can also be made to operate by the use of firmware, such as software, commands, logic or data encoded on a chip, and equally by the use of hardware, such as a hard-wired circuit that is designed to perform a specific task. It is also possible to provide some of the functionality by use of software modules, and some of the functionality by use of firmware modules and/or hardware modules. In general, a module is an assemblage of one or more parts of software, firmware, and/or hardware that accomplishes a defined function or task.

Turning to FIG. 1A, a sender ("sender A") using a computer **10** sends a video segment in file form and any associated audio material (or a plurality of still images with their associated audio files) as, for example, an e-mail attachment to an e-mail message from sender A's computer **10** over a network (such as the Internet or over any other communication medium that sender A's computer **10** can employ) to a mail server **B 21**. The network can include one or more of a wire connection such as a hardwired connection, a cable connection using RS232, RS422 or RS 485 technology, and telephonic connections or cable connection using a modem. The network can include one or more wireless connections such as a cellular communication connection, an infrared connection, a wireless Local Area Network (LAN) and Bluetooth technology. The network can include a terrestrial satellite communication connection.

The mail server **B 21** performs various parsing and file recognition processes, described in greater detail below. The mail server **B 21** is in bidirectional communication with a processing server **C 30**. The functions of the mail server **B 21** can be performed by one or more server computers, and the functions of the processing server **C 30** can be performed by one or more server computers. In some embodiments, the mail server **B 21** and the processing server **C 30** can be implemented on the same one or more server computers.

The processing server **C 30** performs various video and file conversion and identification processes, described in more detail below. The processing server **C 30** is in bidirectional communication with a streaming server **D 40**. The functions of the streaming server **D 40** can be performed by one or more server computers. The streaming server **D 40** receives the video in streaming video format from the processing server **C 30**, and returns to the processing server **C 30** at least one video identifier that can be used to request the video to be streamed to a viewer. The streaming server **D 40** includes machine-readable storage **50**, such as one or more of a hard disk, a CD-ROM, and a semiconductor memory. The machine-readable storage **50** (a single example of which is shown for simplicity) is in communication with one or more databases **60, 61** (only two of which are shown for simplicity). Each of machine-readable storage **50** and the databases **60, 61** can be local or remote, in that each can be implemented as a component that is connected directly to the streaming server **D 40**, or each can be connected to the streaming server **D 40** by way of a network.

The streaming server **D 40** also creates one or more identifiers for the video file. The identifiers, which are discussed in more detail below, can include, for example, one or more of an image identifier (for example, a "thumbnail" or iconic image), an identification tag, a file handle, a storage location, an address such as a Universal Resource Locator (URL), a file name, or an interactive control, or a control object operating

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according to the Component Object Model (COM), for example an Active X control. The streaming server **D 40** transmits the video in streaming video format to the machine-readable storage **50**, which, at the direction of the streaming server **D 40**, can store the video in streaming video format and also can store an identification tag for the video on itself or on the databases **60, 61**. The identification tag, or another identifier of the video, such as the thumbnail and/or the URL, is communicated back to the sender A's computer **10** by way of one or more of the streaming server **D 40**, the processing server **C 30**, and the mail server **B 21**. The operator of sender A's computer **10** can then use the identifier to request that the video be streamed to sender A's computer **10** for viewing, and/or the operator of sender A's computer **10** can provide the identifier to another viewer, for example, by way of a Web page, or by an e-mail. In one embodiment, the identification tag can be embedded in a Web page so that a visitor to the Web page can activate the identification tag, such as a link to a URL, and can transmit to the receiving computer the information required to cause the streaming of the video segment to the computer of the Web page visitor for viewing. In the case of an identifier such as a URL, the operator of sender A's computer **10** additionally can communicate the identifier orally or in writing to another viewer. The other viewer can then use the identifier to request that the video be streamed from the streaming server **D 40** to his or her computer for viewing.

Turning to FIG. 1B, the system and method are described in more detail in a number of alternative exemplary embodiments. The video sent by sender A's computer **10** (whether sent by e-mail, by HTML message, by use of a Web page, or by some similar or other mechanism operating over a network) can include additional information provided by the user of sender A's computer **10**. This additional information includes, but is not limited to, the identification of the user of sender A's computer **10** (such as a proper name or a username and password registered with the server computer), the electronic return address of the user of sender A's computer **10** (such as an e-mail address), a title or an identifier for the video (such as a name, a date produced, a location, or a subject relating to the video that the user of sender A's computer **10** will recognize), a description of the video and/or other comments by the user of sender A's computer **10** about the video, a description of how a response should be transmitted and/or formatted (e.g., e-mail, Web page containing the video, HTML e-mail with the video embedded, and the like), and any other information that may help to identify the user of sender A's computer **10** and/or the video.

In an embodiment in which the video is submitted by standard e-mail or HTML e-mail **1200**, the information that the user of sender A's computer **10** provides is in general standard information that the e-mail format supports. The identity **1220** of the user of sender A's computer **10** and the return address **1240** of the user of sender A's computer **10** is automatically provided as part of the e-mail. The title or identifier of the video (e.g., name and subject matter) **1230** preferably can be provided as the subject of the e-mail, or alternatively within the body of the e-mail, or as an attachment such as a text file. The description of the video and/or other comments by the user of sender A's computer **10** preferably can be provided in the body of the e-mail. Alternatively, the description and/or other information related to the video or to the user of sender A's computer **10** can be provided as part of the subject line of the e-mail, in the body of the e-mail message, or as an attachment to the e-mail message. The video (and optionally audio) material is sent as an attach-

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ment 1250 to the e-mail. The recipient of the e-mail and attached video appears as the addressee 1210.

In another embodiment in which the video is submitted by HTML form or message 1300, or by use of a Web page, the server computer 1400 provides a form which has specific interactive spaces or dialog boxes for each piece of information, including the identity of the user of sender A's computer 10 and the return address 1320 of the user of sender A's computer 10, the title of the video 1310 and/or identifier of the video, and the description 1330 of the video and/or other comments. The HTML message or the Web page can also have space for additional information 1350, as well as optional information that the user of sender A's computer 10 desires to submit.

The additional information can include, but is not limited to, payment information (e.g., credit card number, account number, or the like), specifications such as resolution and/or image quality desired by the user of sender A's computer 10, and optional services desired, such as the provision of the files in some additional optional form, such as recorded on CD-ROM and sent to the user of sender A's computer 10 by postal service.

The optional information can also include information indicating the streaming video format that the video segment should be converted into, information about the resolution, transmission bitrate, and video quality of the streaming video format that is desired, and a period of time that the video segment should remain available. In one embodiment, an instruction includes a display format of the video segment to be displayed on a destination computer, such as information about the size of the display in pixels or in linear measure such as inches or centimeters, information about what portion of the screen is to be used, such as the location on the screen, or whether the full-screen is to be used, and the like. In one embodiment, the sender A using computer 10 is able to set priorities about which video segments should be processed first by the receiving computer. The form can include a browse button 1340 that allows the user of sender A's computer 10 to browse a drive and its directories/subdirectories or other file storage location to more easily locate a file to be sent. The browse button 1340 also activates a series of computer commands that automatically retrieve and attach the file to be sent to the HTML form.

In an embodiment (not shown) in which the video is submitted by FTP, the server computer 1400 parses the various parts of the FTP message, for example by identifying images as one of the various image file formats, by identifying audio files as one of the many audio file formats, and by identifying and parsing text files.

The system and method include functions that take place at the server computer 1400 in FIG. 1B. The server computer 1400 can be implemented using one or more server computers. The capabilities that the server computer 1400 provides include all of the capabilities of the mail server B 21, the processing server C 30, the streaming server D 40, the machine-readable storage 50, and the databases 60, 61 described in FIG. 1A. These capabilities include, but are not limited to, performing the functions of: receiving the transmission of a video file, optionally with one or more audio files, in e-mail, HTML message, Web page format, or FTP upload to the server computer ("receive information" at box 1405); extracting from the received message the video and all of the information sent with the video, including but not limited to, the identity of the user of sender A's computer 10, the return address of the user of sender A's computer 10, the title of the video or identifier of the video (such as subject, place, date, or the like), the description and/or other com-

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ments, optional additional information, as well as information that the user of sender A's computer 10 desires to submit ("take information" at box 1410). The server computer 1400 performs functions that are described in detail in the discussion below with respect to one or more computer programs, (collectively) called the VideoShare Producer, that operate on a user's computer, such as a personal computer. In the present invention, many of the functions described in detail for the VideoShare Producer are performed by one or more computer programs that operate on the server computer 1400. These functions, steps, or operations include, but are not limited to: determining whether the video is already in a format compatible with streaming video ("define if video is streaming compatible format" at box 1420); if the video is not in a format compatible with streaming video, automatically converting the video into a format that is compatible with streaming video (No at box 1422 and "convert to format compatible with streaming video" at box 1425); passing the video to the next process step if it is already in streaming video format (Yes at box 1430); optionally compressing the video in streaming video format; creating an identification tag for the video in streaming video format; storing a copy of the video in streaming video format in an archival machine-readable storage 50; recording in a database 60, 61 the identification tag and the storage location of the stored copy of the video in streaming video format for later retrieval; creating one or more identifiers, such as a "thumbnail," a URL, a file handle, or a file name for the video and recording the one or more identifiers; sending at least one of the one or more identifiers to sender A's computer 10 of the video at box 1440; and upon a request in the form of a return of the identifier back to the server at box 1450, serving the video in streaming video format in response to the request at 1460 to the source of the request. In another embodiment, the request to stream the video segment comes from a computer other than that of the sender A of the video segment, and the streaming video is then served to the computer other than that of the sender A. In addition to the processes just described, the methods and systems of the invention can also convert the video segment from a first streaming video format to a second streaming video format, differing from the first streaming video format in at least one of a file format, an encoding scheme, a resolution, an image quality, a transmission rate, and a file size. In some embodiments, a video segment is converted into a plurality of different formats, differing in one or more of the properties enumerated above, such as the file format, the file transmission quality and bitrate, and the like. In some embodiments, the conversion of a video segment from one streaming video format to a different streaming video format is performed in response to a request for the video segment to be streamed in a specific format.

The discussion below describes how a video can be examined to determine if it is or is not in a format compatible with streaming video format. The discussion below describes the kinds of conversion that are done to convert a video that is not in a format compatible with streaming video format to a format that is compatible. The discussion below describes the optional compression of a video segment. The discussion below describes the creation of an identification tag for a video and the use of the identification tag. The discussion below describes storing a video in uncompressed or in compressed streaming video format, either locally or remotely from the storage of the server computer. The discussion below describes recording in a database the identification tag and the storage location of the stored copy of the video in streaming video format for later retrieval. The discussion below describes creating one or more identifiers for the video and

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recording the one or more identifiers. The discussion below describes sending at least one of the one or more identifiers to the sender of the video. The discussion below describes serving the video in streaming video format in response to requests to serve the video.

In communicating over a network, a file can be transmitted along with information about the file between computers either through an e-mail attachment, by using an FTP client-server program, or by using an upload mechanism placed on the Web. In one embodiment, the systems and methods of the invention can optionally convert a video in one streaming video format to a second streaming video format, as indicated by the arrow labeled "optional" that points from box 1430 to box 1425. In one embodiment, if the segment is not in streaming format at the time it is received by the receiving computer, the receiving computer will automatically convert it into streaming format. In one embodiment, even if the video segment is in streaming format upon receipt at the receiving computer, the receiving computer automatically converts the video segment into another streaming video format. In some embodiments, the video segment can be converted into multiple video formats, including both formats compatible with streaming video and formats not compatible with streaming video. In some embodiments, the destination computer is notified that the segment is available in more than one format and that a user of the destination computer can select whichever format is preferred for the transmission.

In the case where the video segment is available into multiple formats at the receiving computer, the format that will be used in streaming the video segment to the destination computer can be selected based on criteria that exist at the destination computer, including the possibility that the video segment should be downloaded to the destination computer in a non-streaming format, and then displayed at the destination computer when the entire video segment has been downloaded.

While a viewer can select a video format, in the event that the viewer does not know which format to select, or in the event that a better viewing experience would result, a suggested format can be communicated to the receiving computer from the destination computer. Example of such communications can include a default viewer setting, such as a default ASF format, if available, and a secondary preference for a QuickTime format. In another embodiment, the receiving computer makes a format recommendation to the destination computer along with the transmission of the identification tag. Such a recommendation can, for example, be a communication that of the various streaming video formats available (which can be enumerated) a particular format is suggested as the preferred format. The receiving computer can also determine a format for streaming a video segment in response to information that the receiving computer obtains about the display software that is installed on the destination computer, and the receiving computer can then recommend a format for which the destination computer already has display software. Another alternative is to determine a streaming video format that will provide an optimal viewing quality. Viewers who do not have appreciable technical information regarding streaming video formats will be afforded guidance as to which one to use. This format detection mechanism is very similar to the speed detection mechanism described elsewhere in this application.

The systems and methods of the present invention use convention methods for such activity. The system and method of the present invention extract from the received message the video and all of the information sent with the video, including but not limited to, the identity of the sender (e.g., the user of

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sender A's computer 10), the sender's return address, the title or identifier of the video, the description and/or other comments, optional additional information, as well as information that the sender desires to submit. In general, if one has knowledge of the syntax of the message that one has received, it is possible to parse the message into its component parts. In an embodiment that relies on conventional transmission formats, such as e-mail, the message is parsed into the component parts according to a set of parameters that correspond to the default encoding of the message format. If such parsing fails to disclose one or more components, a second more specialized computer program can search for a string that corresponds to a title or identifier. For example, if the subject line is blank, there appears to be no sender-supplied title or identifier, and the more specialized program could look for a string having a format like "(words) at (words)," such as "(My family) at (the beach)," or the like. In an embodiment such as an HTML or Web page form, the parsing is direct in that each dialog box has a prompt that the sender responds to, and the content of each box is taken to be the requested information. The server computer can check some of the information provided, such as an e-mail address, for example by inquiring of the Internet Service Provider (ISP) server whether the address is valid. Information that is optional, or information such as a title for a video, can be accepted without the necessity to confirm the accuracy or validity of the information.

The server computer 1400 operates on the received message with the video in the following manner, irrespective of whether the message is in e-mail, HTML mail, HTML Web page submission format, or FTP. The server computer 1400 recovers the video and each of the pieces of information from the message. The server computer 1400 determines if the video is in a format compatible with streaming video, or not. If not, the server computer 1400 converts the video into a format compatible with streaming video format. The server computer 1400 takes that form of the video that is compatible with streaming video format and optionally performs compression of the video. The server computer 1400 takes the video in format compatible with streaming video format, in uncompressed or optionally compressed condition, and creates one or more identifiers, which can include a "thumbnail" image (described in the discussion below), a file name, a handle and the like, as well as other identifiers such as a description of the video. The server computer 1400 creates an identification tag, which it uses to identify the uncompressed or optionally compressed video in streaming video format for storage and retrieval purposes. The server computer 1400 stores the uncompressed or optionally compressed video in streaming video format locally or remotely in an archive. The server computer 1400 stores in a database the identification tag and the location of the uncompressed or optionally compressed video in streaming video format. The server computer 1400 sends to the sender one or more of the identifiers of the video. The identifiers can be sent to the sender in one or more different formats, including an identifier such as a Universal Resource Locator (URL) that is associated with the stored uncompressed or optionally compressed video in streaming video format; an e-mail with information relating to the location and/or command required to request that the video be streamed; the command to stream the video embedded in an e-mail or a HTML message; the command to stream the video embedded in a Web page, and the like. The information sent to the sender can include the "thumbnail" image for ease of identification of the video and its subject matter.

In some embodiments, if the receiving computer is already processing a video segment at a time that another video segment is received, the second video segment and associated

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commands is queued to be processed later. This involves queuing the video segment and any commands associated with the video segment in a storage location under the control of the receiving computer. In some embodiments, if video segments are queued under the control of the receiving computer, the video segments can be processed in an order based on a priority set by the sending computer, a priority set by the receiving computer, or according to any other priority scheme, such as a calculation performed using an algorithm, that is implemented on the receiving computer.

In some embodiments, the sender or the intended recipient at a destination computer is notified of an estimate of how long the processing of a video segment is going to take, before the video segment is actually processed. The notification can be provided by any method, such as by a return email sent upon receipt of the video segment at the receiving computer. As those familiar with the processing of video segments will appreciate, converting a video into streaming format can be time-consuming, and if many computers submit their videos at the same time, some requests for service may take some time to process by the receiving computer. In this case, it is important to be able to notify the sender or the destination computer of an approximate amount of time that providing the required service will take. This is similar, but by no means identical, to phone systems in which a caller is notified of the approximate waiting time until the next operator will be available to respond to a call. In a system where a caller waits for a response by a human operator, who speaks with other callers, there is only a statistical possibility of defining a waiting time, because any call may be longer or shorter than an average, or expected, duration. In the methods and systems of the invention, a calculated estimate of a processing time can be provided based on the file size and the format of a video segment. For example, knowing the processing speed of a CPU, and an estimate of the time or the number of processing operations required to convert a file of a predetermined format and size, a file having a given size of the same format could be expected to require a time proportional to the ratio of the file sizes, to a first approximation.

In some embodiments, the identification tag is communicated to the destination computer by the receiving computer in association with one of an electronic mail message, an HTML electronic mail message, and an instant message, such as a message communicated among members of an affinity group of computer users who are contemporaneously on-line. In one embodiment, the identification tag is an hyperlink provided in the message sent to the destination computer, the hyperlink pointing to a Web page that causes the streaming of the video.

The sender of the video can request that the video be streamed to the sender, and the sender can additionally, or alternatively, provide the information needed to request the server to stream the video to one or more other viewers. When the sender of the video, or a party who has been given the requisite information, sends to the server computer a request to stream of the video, the server computer streams the video to the requester. It can also automatically submit the video to a third party service including but not limited to on-line auctions, on-line resume services, on-line dating services, or on-line customer support centers.

FIG. 1C is a diagram 1500 showing software modules that are resident on one or more of the mail server B 21, the processing server C 30, and the streaming server D 40. The software modules perform specific tasks. The servers 21, 30, 40 are interconnected by a network 22 with a machine-readable memory, such as storage array 64, upon which software,

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including software modules, can be recorded and retrieved for use by the servers 21, 30, 40. The software modules are described below.

A control module 1510 controls a memory, which can be any conventional machine-readable memory such as RAM, magnetic memory, or optical memory. The control module 1510 can store and retrieve information from the memory. The memory is capable of holding computer instructions and data, and as indicated above, can be located locally with respect to any of the servers, or remotely from the servers, but in any event the memory is accessible over the computer network 22.

A receiving module 1520 can receive both a video segment and an associated message. The video segment and the associated message can be sent from any one of the one or more other computers in the network 22 with which the servers 21, 30, communicate. The receiving module 1520 can determine that the video segment and the associated message have been received correctly, and that the files are complete, for example by use of error detection and correction technology such as cyclic redundancy checking (CRCs) and coding.

An analyzer module 1530 determines whether the received video segment is in a streaming video format. The determination of a format can be carried out by comparing the format to known format characteristics and format identifiers. The analyzer module 1530 can determine whether the format of the video segment is a particular format including, but not limited to, such formats as QuickTime format, ASF format, WMF format, MPEG format, a Real Networks (Real) format, an AVI format, an uncompressed AVI format, and formats not compatible with streaming video.

A format conversion module 1540 converts a format of the video segment to a format that is compatible with streaming video. The format conversion can be a conversion from a format not compatible with streaming video to a format compatible with streaming video, a conversion from a format not compatible with streaming video to a different format not compatible with streaming video, a conversion from a format compatible with streaming video to a different format compatible with streaming video, or a conversion from a format compatible with streaming video to a format not compatible with streaming video. The format conversion can be performed by subjecting a file having a known format to a transformation that prepares an additional file encoded according to a second known format. Such transformations are generally algorithmic in nature.

A storage module 1550 stores the video segment in streaming video format in the memory that is under the control of the servers 21, 30, 40, control being exerted by way of the control module 1510.

An identification module 1560 creates an identification tag identifying the video segment in streaming video format that is stored in the memory. As indicated below, the identification tag can take many forms, including a hyperlink provided in the message sent to the destination computer, the hyperlink pointing to a Web page that causes the streaming of the video. The identification module 1560 can select a video frame from the video segment in streaming video format as an identification tag. The identification module 1560 can identify a location where the video segment is stored. The identification module 1560 can identify how the video segment can be accessed. The identification module 1560 can provide an image that represents the subject matter of the video segment. The identification module 1560 can generate a file name.

A transmitter module 1570 transmits over the network 22 or another network such as the Web the identification tag to a computer of the one or more other computers. The transmitter

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module **1570** can transmit the identification tag using an electronic mail message communication protocol. The transmitter module **1570** can transmit the identification tag using a HyperText Markup Language (HTML) mail message communication protocol. The transmitter module **1570** can transmit the identification tag using an upload form residing on a World Wide Web (Web) page. The transmitter module **1570** can transmit the identification tag using a File Transfer Protocol (FTP) transfer.

A sharing module **1580** streams the video segment in streaming video format to the destination computer in response to a return of the identification tag to the receiving computer. The video segment is streamed over the network **22** or another network such as the Web. The sharing module **1580** can stream the video segment to a specified computer. The sharing module **1580** can stream the video segment at a selected bitrate. The sharing module **1580** can stream the video segment at a selected transmission quality. The sharing module **1580** can stream the video segment at a selected performance level. The sharing module **1580** can stream the video segment in a selected format.

In this document there are references to methods and systems that operate on the computer of the user. There are references to software called VideoShare Producer that operates on the computer of a user. It should be understood that any system, process or capability that can be carried out on the user's computer in relation to the VideoShare Producer software can equally well be carried out on a host computer that includes one or more server computers that communicate over a network such as the Web with other computers. That is, any process performed on a user computer by software such as the VideoShare Producer can also be performed on a host computer that includes servers.

This document makes reference to processing of a video file on the user computer before the video file is uploaded to a host computer. It should be understood that it is also possible to upload the video file without performing all of the processing described at the user computer, but rather performing the processing at the host computer after the video has been uploaded.

Referring to FIG. 1D, a user of the system, such as a private individual working from home, or a professional working from a business, employs a computer system **10**. The computer system **10** can include a computer which can be a personal computer of conventional type such as a desktop or laptop computer, a hand held device such as a PDA, or a more powerful computer such as a workstation, a server, a mini-computer, a mainframe, or the like. The computer system **10** can operate software including a web browser such as Microsoft Internet Explorer or Netscape Navigator or Communicator or the like, for communication over a network such as the Internet using the World Wide Web (hereinafter "the Web"), or to permit wireless communication. The computer system **10** can operate software that can manipulate video segment files. The computer system **10** can communicate with video sources, such as video cameras and video recording machines, if the user wishes to employ such sources. Conventional commercially available personal computers typically have sufficient capability to meet these requirements. The computer system **10** can also employ video segments generated digitally by the computer and appropriate software, or by another computer, if the user wishes to employ such techniques. In one embodiment, the computer system **10** operates a software package called VideoShare Producer **20**, which will be described and explained in more detail below.

The VideoShare Producer **20** is a software application package that the user can download from the Web site

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www.VideoShare.com **50** or that the user can obtain in other formats such as on a CD-ROM or bundled with other software or hardware. The VideoShare Producer **20** software can be operated by the user under his control on his computer, in the computer system **10**, in order to provide the capability of recording, converting, and optionally, compressing video segments, creating one or more identifiers for a video segment, and transmitting a video segment with one or more of the identifiers to a host computer **60** operating under the control of a host such as www.VideoShare.com **50** for storage at a location under the control of the host computer **60**. The host computer **60** will be described further below.

The computer in the computer system **10** of the user one can be connected to one or more kinds of equipment for generating video segments, such as a video camera such as a Web cam **12** or another type of video camera such as a professional quality video camera. The computer in the computer system **10** of the user can be connected to one or more kinds of equipment for providing prerecorded video segments, such as a video recorder **14**, or another computer that can create digital video segments through the use of suitable software, such as for example digital video segments that have been created for various commercial films, or the like. Once the user has obtained a video segment, and has manipulated it according to the procedures described below with regard to the operation of the VideoShare software package, or its equivalent, the video segment with one or more identifiers is transmitted to the host computer **60**.

The host computer **60** includes one or more server computers **62**, **62'**, **62"** that communicate over a network such as the Web with other computers, such as the computer in the user's computer system **10**. The one or more server computers **62**, **62'**, **62"** also communicate with a storage array **64**, or optionally with a plurality of storage arrays substantially similar to storage array **64**. The storage array **64** can be any convenient storage system, such as a redundant array of magnetic storage disks, one or more readable and writeable CD-ROMs, random access semiconductor memory, any combination of such storage devices, or the like. In one embodiment, the host computer **60** operates the www.VideoShare.com **50** web site, and provides a video hosting service to one or more users. The host computer **60** can connect over the Web and the web site www.VideoShare.com **50** to one or more computers that comprise the Web, conceptually denoted by the box **70**, which, while not a part of the www.VideoShare.com **50** Web site, appears to be transparent to users of the www.VideoShare.com **50** Web site, as well as to viewers of video segments that are being hosted by the host computer **60**.

Viewers, or individuals who desire, or are invited, to view video segments hosted on the host computer **60**, can access video segments hosted on the host computer **60**. As will be described in more detail below, in one embodiment, video segments can be hosted on host computer **60** in areas that are open to the public, or can be hosted in other areas that are open only to viewers who have the appropriate permission or authorization to view a specific video segment. A hosted video segment that is stored and controlled by the host computer **60** may be delivered to and displayed for a viewer in a variety of formats, and through a variety of methods, as denoted generally by the box **80**. In different embodiments, a video segment can be displayed as: a video greeting card **81**, such as a person wishing another a happy birthday; as video email **82**, as video that can be viewed on a remote website **83** (e.g., a video segment embedded into the remote website so that a viewer who visits the remote website sees the video segment as part of the page that is presented); as video com-

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merce 84, for example a video that depicts a person describing his or her experience and training as part of a resume submitted on-line; or as a video advertisement 85, for example a video depicting the benefits or showing the use of a product. Many other like applications of the technology can be envisioned. In various embodiments, the video segment can be made available to the viewer as a streaming video that is sent to the viewer, or may be made available by sending the viewer a message such as an email that contains an address of a location to visit on the Web (e.g., a Universal Resource Locator, or URL), or may be made available by sending the viewer a message that contains an embedded link to a URL, for example by sending an e-mail containing the link or by sending a still image that may have some interest to a viewer (e.g., sending a grandmother a still image of her grandchildren) to which a link is attached (e.g., the still image is linked to a streaming video of the grandchildren that is delivered and that plays when the still image is clicked). In the latter two methods of making a video segment available, or in like methods, the viewer must take some action, such as employing the URL or activating the link. In some embodiments, the viewer can use a hand held device such as a PDA or a cellular telephone that can connect to a network such as the Internet to view the video segment.

In FIG. 2, the computer 16 of the user's computer system 10 is shown. The box 18 is intended to schematically depict a user of a computer video input device, which device can be the computer 16 operating suitable software to generate digital video, or can be another such computer, or can be the web cam or video camera 12, or can be the video recording device 14, or the like. The user begins by producing and/or recording a video segment on the hard disk of the computer 16 or within the temporary memory of a handheld device. As a second step, the video segment of step 1 can optionally be compressed and/or can be changed as regards the computer file format in which it is recorded on the hard disk. As a third step, the video segment recorded on the hard drive of the computer 16 is transmitted with one or more identifiers to the host computer 60 that includes the VideoShare servers 62, 62' and the storage array 64. The video segment is stored under the control of the host computer 60, which can generate an identification tag that the host computer 60 can use to locate the stored video segment for retrieval and for viewing. In different embodiments, the identification tag can be provided to a user in the form of a URL, or can be embedded into a Web page on a remote site, or can be linked to a message. In one embodiment the message can be a still image that can be selected from the video segment. The third step is schematically depicted by the arrow pointing generally from the computer 16 to the VideoShare servers 62, 62'. As a fourth step, the user who stored the video can send a message to an intended viewer, so that the viewer can access and view the video segment. The fourth step is schematically depicted by the arrow pointing generally from the computer 16 to the computer 90 of the viewer. The box 92 is intended to schematically depict a user of a display device. In one embodiment, the display device can be the computer 90, or the display device can be a display device such as a Web TV, or can be a video output device such as a television set with a suitable decoder, or the like. The display device can also be a wireless hand held device such as a PDA or a cellular telephone or the like. In a fifth step, the viewer activates the viewing of the video segment. The viewer's action is indicated schematically by the arrow pointing generally from the computer 90 to the server computer 62, 62'. In one embodiment the viewer activates a link by clicking a button, and the server computer 62, 62' responds by sending a streaming video segment that the

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viewer observe. The streaming video segment can in one embodiment be delivered as part of a video greeting card 81. In an alternative embodiment, the video can be delivered as a streaming video directly to the viewer from the host computer 60, without the viewer having to activate the host computer 60.

As shown in FIG. 3, the user can obtain a copy of the VideoShare Producer 20 software by downloading a copy of the software from the Website www.VideoShare.com 50, as indicated by the picture at numeral 1. Alternatively, the user can obtain a copy of the VideoShare Producer 20 software on machine readable media such as a CD-ROM or the like. The VideoShare Producer 20 software can be bundled with one or more utility or application programs that are useful for a user to have, such as a "container" application so that the VideoShare Producer 20 software can be operated on a desktop computer. The user can install the VideoShare Producer 20 software on his or her computer 16 and can register with the VideoShare.com hosting service at no charge. In registering for the VideoShare service, the user obtains a username and a password that can be used to identify the user. The activity of installing the VideoShare Producer 20 software on the user's personal computer or the like and registering with the VideoShare system is indicated by the picture at the numeral 2.

In order to use the system, the user first obtains a video segment. The user can create the video segment, for example with a Web cam 12, or the user can use an existing video segment obtained from a video recorder 16, as indicated by the picture at the numeral 3. The VideoShare Producer 20 software has direct capture capabilities that permit the user to create the video segment.

The user can employ the VideoShare Producer 20 software to optionally compress the video; to determine if a video segment is in a format that is compatible with streaming video; to convert the video to a file format that is compatible with streaming video if the video segment is not already in a file format that is compatible with streaming video; and to transmit the video segment together with one or more identifiers that represent selections that the user can make (for example, a still image selected from the series of images that comprise the video segment, an identifier of the sender of the video segment (e.g., the user), an access privilege associated with the video segment, information indicative of a time period during which the video segment will be accessible, and information indicative of a number of instances that the video segment may be accessed). The activities carried out in conjunction with the VideoShare Producer 20 software are generally indicated by the graphic at numeral 4.

The video segment and the identifier(s) are transmitted to the host computer 60 for storage and for later distribution. In one embodiment, the video segment is transmitted in a streaming video file format. This transmission activity is denoted by the graphic at numeral 5.

The video segment is stored under the control of the host computer 60, which can include one or more server computers 62 and storage array 64. The activity of receiving the video segment at the host computer 60 and storing the video segment and its identifier(s) is denoted by the pictures at numeral 6.

Depending on the choice of the user as to access privileges, the video segment can be stored as a publicly available video in a location in storage array 64 that has no restrictions on access, or it can be stored in a portion of storage array 64 that requires some form of authorization to enable access, such as in a private email account area. The storage of the video segment as a public or private video segment is denoted by the pictures at numeral 7.

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Upon request from a viewer who has the proper authorization, or upon any request in the case of a video segment available publicly, the host computer **60** sends the video in streaming video format to a viewer, who can observe the video in real time using a conventional web browser without additional plug-in modules. The activity of serving the video segment as a streaming video is denoted by the graphic at numeral **8**.

The majority of the VideoShare Producer **20** software was developed as a Windows 95, Windows 98, and Windows 2000 (“Windows 9x/2000”) compatible ActiveX control (e.g. an OCX file), with additional components existing as active template library (ATL) component object model (COM) components that are instantiated during runtime. A “container application,” named “VideoProducer.exe,” allows the VideoShare Producer ActiveX Control to be executed from the Windows 9x/2000 desktop. The VideoShare Producer Active X Control can also be embedded into a web page, as is done within the www.VideoShare.com **50** web site.

The custom written VideoShare Producer **20** software includes the following binary/source code components: (1) VideoShare Producer ActiveX Control (VideoProducer.ocx); (2) JPEG ATL COM component jpeg.dll); (3) Thumbnail Acquisition DirectShow (ThumbnailFilter.ax); (4) Extended MAPI interface (MapiExAPI.dll); (5) ICQ interface (icqglue.dll); AND (6) VideoShare Upload/Database Server (vps-
server.exe).

All components, except for significant portions of the JPEG component that uses public domain source code, were entirely written by VideoShare Inc. The VideoShare Upload/ Data Server constantly runs at the VideoShare Hosting Facility, an embodiment of the host computer **60**, with which an installed instance of the VideoShare Producer **20** software on a user’s computer **16** can be in constant communication. The VideoShare Producer **20** software client/server structure allows the user to upload videos to his or her account through the “Save and Share” button that is described later.

The VideoShare Producer **20** software is built upon the following third-party technologies that provide lower-level device support, document sharing, and file format conversion: (1) Microsoft’s DirectShow; (2) Microsoft’s Windows Media Technologies; (3) Microsoft’s Video for Windows; (4) MAPI; AND (5) ICQ.

When the user launches the VideoShare Producer **20** software, he or she will see the window depicted in FIG. 4 appear on his or her computer **16** operating the Win9x/2000 operating system. The login screen can be made optional for repeat users by providing a unique identifier for the user, such as a password, or by installing on the user’s computer or the like a record similar to the “cookies” used by some interactive computer systems operating on a network such as the Internet.

When the user enters in his or her username in the box **410** labeled VideoShare Login Name and his or her password in the box **415** labeled VideoShare Password and activates the “Start VideoShare Producer” button **420**, the VideoShare Producer **20** software opens a TCP/IP socket connection to the VideoShare Upload/Database Server using port **80** in order to avoid typical Firewall and/or Proxy Server problems. If the box **430** labeled Remember password is checked, the VideoShare Producer **20** software will remember the user’s password, eliminating the necessity to type in that information each time the software is started. The VideoShare Upload/ Database Server then verifies the validity of the username/ password. Furthermore, the VideoShare Producer **20** software will notify the user if there is a more recent version of the software available, giving him or her the opportunity to automatically download and install the new software.

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Also at this point, the user can choose to work offline by checking box **440** “Work offline”, which suspends communications to the VideoShare Upload/Database Server until the user has filled his or her “Sharing Queue” as described later. **5** The ability to work offline is principally of use for people with computers that do not have a continuously open Internet connection, e.g. computers that use telephone modems rather than high speed connections or equipment such as cellular telephones or hand held devices that require the user to dial in to establish a connection. With this login dialog, the user can also receive help, by activating the “Help” button **450**, taking the user to a web page on the VideoShare web site. The login dialog box can also be used to create a new VideoShare user account, by clicking the “Create Another Account” button **460**.

Once the login process has been completed, the VideoShare Producer **20** software looks for available DirectShow audio and video capture devices. These available devices are enumerated and listed within the “Settings Tab” as described later. The Video Share Producer **20** software initializes the audio and video capture device, by recalling as a default the device that was used most recently.

VideoShare Producer Preview/Capture/Import Process

After the capture device initialization, the VideoShare Producer **20** software displays the window depicted in FIG. 5.

The image **510** in the middle of the window is the video input stream from the initialized, default video capture source. The image in FIG. 5 is that of an employee of the assignee of the present invention, in the offices of the assignee. The VideoShare Producer **20** software automatically builds a DirectShow “preview graph” where the video stream from the video device is displayed on the screen, but is not saved to disk. This gives the user the opportunity to adjust the camera, e.g. an opportunity to correct the camera position, the camera focus, the camera angle, the magnification of the image, and the like.

At the top of this window, the user is presented with five different “tabs”, each presenting the user with different aspects of the VideoShare Producer **20** software. In FIG. 5, the tab labeled “Record/Playback” **520** is active, indicating that the VideoShare Producer **20** software is ready to acquire and/or display a video segment.

At the bottom of the window, there is a status message **522** that displays the current operation of the VideoShare Producer **20** software. In FIG. 5, the status message **522** prompts the user to either activate the Record button **531** to create a new video segment, or to import an existing video segment by activating the Import Video button **535**, both of which are described in more detail below.

Directly below the video preview image **510** is a Capture/ Playback Control Panel **530** that includes the following items:

Record button **531** which begins a new audio/video capture;

Stop button **532** which terminates an active audio/video capture operation;

Play button **533** which initiates the playing back of the last recorded or imported video;

Delete button **534** which cancels the last record or import operation and begins a new video preview;

Import Video button **535** which allows the user to select a pre-existing video file from his or her hard drive;

Save and Share button **536**, which in the present embodiment activates software modules that convert the current video file into a compressed streaming format, upload that converted file to the VideoShare web site, and give the user options to distribute that video to other people; and

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Shuttle Bar **537** which is used to control the current position of the playback file together with forward button **537** and reverse button **538**, allowing the user to rewind and fast forward through the current video.

The software modules that operate upon the activation of Save and Share button **536** will be covered in a subsequent section in this document in detail.

When the user begins to record a video, the VideoShare Producer **20** software builds a new "Capture Graph" that renders the video stream to both the display window as well as to a temporary AVI file on the user's hard drive. The audio/video capturing continues until the user activates the "Stop" button **532** at which point the VideoShare Producer **20** software stops the "Capture Graph", destroys the DirectShow filter, builds a Direct Show "Playback Graph", and displays the first frame of the captured video as video preview image **510**. When the user activates the Play button **533** the DirectShow "Playback Graph" is put into running mode, playing back the entire recorded video from beginning to end.

The user can also choose to import a pre-existing video, which in one embodiment can be a file format selected from the AVI, MPEG, or QuickTime file formats, by activating the Import Video button **535**. The VideoShare Producer **20** software automatically renders the correct DirectShow filter to display an imported video correctly.

Save and Share Process

Once a video segment has been recorded or imported into the user's computer **16** that is running the VideoShare Producer **20** software, the user can choose to process the video segment with various optional alternatives by activating the Save and Share button **536**. When the Save and Share button **536** is activated, the video segment is archived and distributed automatically. The VideoShare Producer **20** software greatly simplifies the entire process by seamlessly automating the following steps that are depicted in FIG. 6A:

Video file format conversion, as required;

Compression to a streaming multimedia format at a user-specified bitrate;

Creating a "Thumbnail" JPEG snapshot of the video file, as an identifier that a user or a viewer can observe in order to assess the content of the video segment;

Transferring the resultant video and thumbnail files to the VideoShare server computers **62**, **62'**;

Logging the transactions and managing the user's storage account, including causing the generation of an identification tag that the server computers **62**, **62'** can employ to retrieve the video segment for viewing; and

Automating several possible methods of distributing the video to third party recipients, e.g., viewers.

FIG. 6A shows a flow diagram **600** of an embodiment of the invention in which the VideoShare Producer **20** software automates a number of steps in connection with uploading a video segment by activation of the Save and Share button **536** described in FIG. 5. As indicated at box **605**, a user first obtains and selects a video segment for processing for distribution. The box **605** schematically encapsulates all of the actions that a user takes as described in relation to FIGS. 4 and 5 above. When the user activates the Save and Share button **536** the actions described below that are enclosed by the dotted line **607** are automatically carried out under the control of the VideoShare Producer **20** software.

The VideoShare Producer **20** software subjects the selected video segment to analysis to determine whether the selected video segment is or is not in a file format that is compatible with a streaming video format, as indicated at diamond **610**. Formats that are compatible with streaming media formats include formats such as MPEGs and QuickTime videos. If the

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selected video segment is not compatible with a streaming video format, it is converted to a compatible format, as depicted by the arrow labeled "NO" that points from the diamond **610** to the box **615**, "Convert to compatible file format." The conversion process performed by the VideoShare Producer **20** software creates a DirectShow filter graph that decompresses the video file into a temporary, uncompressed AVI file.

The video segment file in a format that is compatible with streaming video is then temporarily stored in the user's computer **16**, for example as a file on the hard drive of computer **16**. This storing step is performed if the file was originally in a format compatible with streaming video by following the arrow marked "YES" that points from the diamond **610** to the box **620**, "Temporarily store file." Alternatively, the storing step is performed if the file was originally not in a format compatible with streaming video by following the arrow that points from the box **615** to the box **620**.

The stored temporary file representing the selected video is then analyzed by the VideoShare Producer **20** software, as represented by diamond **625**, "Should file be compressed?" to determine if the temporarily stored file should be compressed. If the software determines that the file should be compressed, as indicated by the arrow labeled "YES" that points from the diamond **625** to the box **630**, labeled "Compress file," the file is compressed. The compression involves compressing the video file to a user-specified bitrate, or the bandwidth that is required to view the video without disruption in the transmission. The user can select the desired bitrate by using the "Settings Tab" that is described in more detail below.

The file is then converted to a streaming multimedia format file as indicated by the box **635**, labeled "Convert file to streaming multimedia format ("SMF") file," as denoted by the arrow pointing from the box **630** to the box **635**. If the file is not to be compressed, the flow follows the arrow labeled "NO" pointing from the diamond **625** to the box **635**, and the file is then converted to a streaming multimedia format file as schematically represented by the box **635**.

The process that is performed by the VideoShare Producer **20** software as denoted by the box **635** involves reading in the video file, frame by frame, and converting the video into a streaming multimedia format. In one embodiment, the VideoShare Producer **20** software uses the Windows Media Streaming Format, known as ASF or WMF, but it is not technologically restricted to this choice. The Windows Media Streaming Format comprises MPEG 4 v3 for the video stream and the Windows Media Audio format for the audio stream. The output of this file is stored as a temporary file on the user's hard drive, in one embodiment.

The flow diagram indicates that the process makes a "thumbnail" of the video file, as represented schematically by the box **640**, labeled "Create and temporarily store JPEG "thumbnail" identifier." The VideoShare Producer **20** software produces a JPEG still image that is used as a reference image to the entire video file. It is an identifier of the subject matter or content of the video that a user or a viewer can readily recognize, as compared to an alphanumeric string such as a typical string used to identify a file by its drive, directory (and one or more subdirectories) and filename. Such alphanumeric identifiers are useful, but may be totally uninformative as to the content or subject matter contained in the identified file or video segment. In one embodiment, the VideoShare Producer **20** software creates the "thumbnail" by taking the "middle" image of the entire video file, as measured by the temporal duration of the file. In another embodiment, the selection of an image from which to make the

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"thumbnail" can be left to the discretion of the user. This JPEG file is also stored as a temporary file on the user's hard drive, in one embodiment.

The next part of the process is the upload operation, in which the VideoShare Producer **20** software contacts the host computer **60**, which in one embodiment is the VideoShare Upload/Database Server at the VideoShare hosting facility. This portion of the automated process is denoted by the box **645** labeled "Transfer ("upload") temporarily stored SMF file and JPEG thumbnail identifier to host computer **60**." The VideoShare Producer **20** software notifies the host computer **60** that the user wishes to place his or her video into a repository maintained by the host computer **60**, which in one embodiment can be the VideoShare VideoCenter, which is a repository of all recorded and uploaded videos to date. This upload is performed automatically using a direct TCP/IP socket connection over a specific connection port of the user's computer known as port **80**. The VideoShare Producer **20** software uses a standard communications protocol to perform this transfer to the host computer **60**. In another embodiment, a proprietary protocol can be used, for example if one wants to maintain the security of information contained in the video segment. In another embodiment, the video segment can be encrypted in order to provide enhanced security. Both the compressed video streaming multimedia file and the thumbnail image are uploaded at substantially the same time.

As schematically depicted by box **650**, labeled "Delete temporary file to conserve storage space on user's computer," the VideoShare Producer **20** software removes all of the temporary files that were created in the course of the automated processing described above. This feature provides for the user a convenient, secure, and transparent process, with the benefit that the user's computer storage device(s), for example one or more hard drives, do not become cluttered with unnecessary and obsolete files.

Once the upload has been completed, the VideoShare Producer **20** software and the host computer **60** (for example, the VideoShare Upload/Database Server) will update the user's account to account for the required storage space that the video requires. The necessary logging, creation of an identification tag, and storing of the video and the associated identifier or identifiers is also performed automatically, as schematically depicted by box **655**.

The user can optionally add additional identification and control information about the user, and about how and under what conditions the video is to be made available for distribution, as schematically indicated by box **660**. The process by which some of this information is collected is discussed below with regard to FIG. 8. The user is automatically prompted to provide this information, but has the option to forego making a decision immediately. The transmission of video segment files to viewers is discussed in more detail below, and is represented in FIG. 6 by the box **670** labeled "Transmit file to viewer" which is outside the region **607** as an indication that the transmission of files to viewers is an action beyond the material discussed above in conjunction with the Save and Share button **536** of FIG. 5.

FIG. 6B shows a flow diagram **601** of another embodiment of the invention in which software automates a number of steps in connection with uploading a video segment. Many of the steps already described in connection with FIG. 6A also occur in the embodiment depicted in FIG. 6B, and are numbered in the same manner as in FIG. 6A. In FIG. 6B, there is first an optional step indicated by the box **604** labeled "Optional: User authentication with server" in which the User is optionally required to provide identification, such as a user name and password, that authenticates the identity of the user

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to the server or host computer **60**. The user then obtains and selects a video segment for processing for distribution, as indicated at box **605** that schematically encapsulates all of the actions that a user takes as described in relation to FIGS. 4 and 5 above. When the user activates the Save and Share button **536** the actions described below that are enclosed by the dotted line **608** are automatically carried out under the control of the VideoShare Producer **20** software.

As discussed in relation to FIG. 6A, the VideoShare Producer **20** software subjects the selected video segment to analysis to determine whether the selected video segment is or is not in a file format that is compatible with a streaming video format, as indicated at diamond **610**. If the selected video segment is not compatible with a streaming video format, it is converted to a compatible format, as depicted by the arrow labeled "NO" that points from the diamond **610** to the box **615**, "Convert to compatible file format." The conversion process performed by the VideoShare Producer **20** software creates a DirectShow filter graph that decompresses the video file into a temporary, uncompressed AVI file.

The video segment file in a format that is compatible with streaming video is then temporarily stored in the user's computer **16**, for example as a file on the hard drive of computer **16**. This storing step is performed if the file was originally in a format compatible with streaming video by following the arrow marked "YES" that points from the diamond **610** to the box **620**, "Temporarily store file." Alternatively, the storing step is performed if the file was originally not in a format compatible with streaming video by following the arrow that points from the box **615** to the box **620**.

The stored temporary file representing the selected video is then analyzed by the VideoShare Producer **20** software, and optionally compressed as represented by the box **623** labeled "Optional compression of file." The file is then converted to a streaming multimedia format file as indicated by the box **635**, labeled Convert file to streaming multimedia format ("SMF") file. Alternatively, a file from the box **620** can be uploaded to the host computer **60** without being converted to a streaming format, and the conversion to a streaming video format can be accomplished at the host computer **60**. The process that is performed by the VideoShare Producer **20** software as denoted by the box **635** involves reading in the video file, frame by frame, and converting the video into a streaming multimedia format.

The flow diagram indicates that the process makes a "thumbnail" of the video file, as represented schematically by the box **640**, labeled Create and temporarily store JPEG "thumbnail" identifier.

The next part of the process is the upload operation, in which the VideoShare Producer **20** software contacts the host computer **60**, which in one embodiment is the VideoShare Upload/Database Server at the VideoShare hosting facility. This portion of the automated process is denoted by the box **645** labeled "Transfer ("upload") temporarily stored SMF file and JPEG thumbnail identifier to host computer **60**." Both the compressed video streaming multimedia file and the thumbnail image are uploaded at substantially the same time.

As schematically depicted by box **650**, labeled Delete temporary file to conserve storage space on user's computer, the VideoShare Producer **20** software removes all of the temporary files that were created in the course of the automated processing described above. This feature provides for the user a convenient, secure, and transparent process, with the benefit that the user's computer storage device(s), for example one or more hard drives, do not become cluttered with unnecessary and obsolete files.

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Once the upload has been completed, the VideoShare Producer **20** software and the host computer **60** (for example, the VideoShare Upload/Database Server) will update the user's account to account for the required storage space that the video requires. The necessary logging, creation of an identification tag, and storing of the video and the associated identifier or identifiers is also performed automatically, as schematically depicted by box **655**.

The user can optionally add additional identification and control information about the user, and about how and under what conditions the video is to be made available for distribution, as schematically indicated by box **660**. The process by which some of this information is collected is discussed below with regard to FIG. 8. The user is automatically prompted to provide this information, but has the option to forego making a decision immediately. The transmission of video segment files to viewers is discussed in more detail below, and is represented in FIG. 6B by the box **670** labeled "Transmit file to viewer" which is outside the region **608** as an indication that the transmission of files to viewers is an action beyond the material discussed above in conjunction with the Save and Share button **536** of FIG. 5.

FIG. 6C shows a flow diagram **602** of an embodiment of the invention in which software automates a number of steps in the formatting of a video segment. In particular, in this embodiment, the video segment that the user wishes to provide in streaming video format is compressed into a plurality of formats, each of which is encoded for optimal display at a different transmission bitrate. There can be a benefit to recording the same video segment in multiple formats. For example, a casual viewer may have only a slow speed modem, such as a 28.8 kilobaud (kB) modem. For such a viewer, the slow transmission speed can make the size of a file a critical feature. Such a user can view a video in real time if it is formatted for a 28.8 kB modem, but not if it is formatted for appreciably higher transmission speeds. Another user, for example, one who has a T1 connection that can handle transmission speeds up to approximately 1.5 megabaud, could successfully receive a version of the same video segment that is formatted for higher transmission speeds, with the possibility of having a better quality image and higher resolution, perhaps with better audio as well. The T1 user could see the version of the video segment intended for 28.8 kB transmission if he or she wanted to, but might prefer to see a video segment that appeared to be more professional in quality. By using a system that can automatically discriminate the transmission speed capabilities of the hardware that the user employs, the embodiment allows each user to view a version of the video segment that is optimally configured for the user's hardware.

In particular, the steps of the method enclosed within the dotted rectangle **609** are automated by software that embodies the present invention. As described above, the user obtains and selects a video segment for processing for distribution, as indicated at box **605** that schematically encapsulates all of the actions that a user takes as described in relation to FIGS. 4 and 5 above. When the user activates the Save and Share button **536** the actions described below that are enclosed by the dotted line **609** are automatically carried out under the control of the VideoShare Producer **20** software.

As discussed in relation to FIG. 6A, the VideoShare Producer **20** software subjects the selected video segment to analysis to determine whether the selected video segment is or is not in a file format that is compatible with a streaming video format, as indicated at diamond **610**. If the selected video segment is not compatible with a streaming video format, it is converted to a compatible format, as depicted by the

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arrow labeled "NO" that points from the diamond **610** to the box **615**, "Convert to compatible file format." The conversion process performed by the VideoShare Producer **20** software creates a DirectShow filter graph that decompresses the video file into a temporary, uncompressed AVI file.

The video segment file in a format that is compatible with streaming video is then temporarily stored in the user's computer **16**, for example as a file on the hard drive of computer **16**. This storing step is performed if the file was originally in a format compatible with streaming video by following the arrow marked "YES" that points from the diamond **610** to the box **620**, "Temporarily store file." Alternatively, the storing step is performed if the file was originally not in a format compatible with streaming video by following the arrow that points from the box **615** to the box **620**.

The temporarily stored file is then compressed in multiple streaming multimedia formats, as denoted by the box **633**. In the present example, three files will be used to describe the process, but it should be understood that more or fewer than three formats may be created at substantially the same time. The resulting multiple files are denoted by the three boxes **634**, **636** and **638** labeled "Bandwidth Target A," "Bandwidth Target B," and "Bandwidth Target C," respectively. Each file is optimally encoded for play as a streaming video segment at a particular transmission rate and bandwidth, such as 28.8 kB, 56 kB, 100 kB, 300 kB, or other transmission rates.

As described above, the method includes a step of creating and temporarily storing a thumbnail identifier, as denoted by the box **640**. Rather than transmitting one video segment in one SMF with one thumbnail, the embodiment of FIG. 6C transmits all the files **634**, **636** and **638** in association with the single thumbnail and any other identifiers that are selected as appropriate. For example, each SMF file can be identified as to its bandwidth. In an alternative embodiment, the system transmits only a single SMF file with its associated identifiers, including the JPEG "thumbnail", and the multiple bandwidth variants of the SMF file are generated at the host computer **60**. This embodiment may be advantageous when the user has only a slow speed modem, and would be severely time constrained by having to upload multiple files.

The remaining steps of this embodiment, as denoted by the boxes **650**, **655**, **660** and **670**, correspond substantially to the steps in FIG. 6A represented by the boxes identified with the corresponding numerals. It should be noted that the precise order of some of the steps, for example, the step denoted by the box **655** and the step denoted by the box **650**, can be interchanged without a different outcome of the overall process. Other such interchanges in sequence are possible as well, again without a different outcome of the overall process.

FIG. 6D depicts an embodiment of the database **64** of the host computer **60** on which are recorded the three exemplary bandwidth target files **634**, **636** and **638** for FIG. 6C. These files are available for delivery over a computer network to a viewer. The files **634**, **636** and **638** represent three versions of the same video segment in streaming multimedia format, each suitable for optimal viewing by a user having hardware operating at the transmission rate corresponding to the format of one of the files.

As shown in FIG. 6E, the user (or the viewer) transmits to the host computer **60** a request for a particular video segment, denoted by the arrow from the box labeled "USER" to the box **960** labeled "Connection Speed Detector." Host computer **60** can include hardware that can sense the transmission speed of a user computer **16**, or of a computer used by a person desiring to view a video segment. Alternatively, the host computer **60** can inquire of the computer on the network that is connected to the user computer **16** or the computer of a viewer about the

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speed of connection that is being maintained. When the information is available to the host computer 60, the host computer 60 can determine which file of the files exemplified by 634, 636 and 638 is most appropriate to serve to the user or viewer, as denoted by the box 692 labeled "Logic to select and serve SMF file to User." The host computer 60 then transmits the appropriate file to the user, as denoted by the arrow from the box 692 to the box 694 labeled "User receives and views SMF file." Alternatively, the viewer can request the transmission of a file encoded at a specific bitrate.

When the user begins the process described in relation to FIG. 6A, in one embodiment, the "Progress Dialog" screen 700 depicted in FIG. 7 is presented, reflecting the status of the process in real time. The "Progress Dialog" screen 700 notifies the user about the total number of bytes that have to be uploaded to perform the transfer and it also informs the user of the number of bytes and the percentage of the file that have been uploaded in real time.

FIG. 8 depicts a dialog panel 800 presenting several methods with which the user can distribute the uploaded streaming video segment and its associated identifiers to third party recipients. The dialog panel 800 prompts the user as to the possible selections that the user can elect.

In one embodiment, there are five possible methods to distribute the video file:

The user can elect to use an email browser to send an email to one or more people that includes a URL reference to the video located on the VideoShare web site. This also includes the further possibility to send the video player directly embedded inside the email message. This option is elected by activating the button 810, labeled "Share as a video mail."

The user can elect to share the video as a greeting card, bringing the user to the Video Greeting Card web page at the VideoShare web site. In this case, the user will also select features relating to the greeting card. The user can elect this option by activating the button 820, labeled "Share as a video greeting card."

The user can elect to send an ICQ URL message, automatically interfacing with ICQ's Instant Messenger software. The user can elect this option by activating the button 830 labeled "Share through ICQ Messaging."

The user can elect to go to the user's VideoCenter page on the VideoShare web site, from which location the video can also be shared or sent to others. The user can elect this option by activating the button 840, labeled "Take me to my VideoCenter."

The user can elect to place HTML code in the user's clipboard that references the video. This HTML code can be "pasted" into any Web page that supports HTML inserts. The user can elect this option by activating the button 850, labeled "Put HTML code in my clipboard." In one embodiment, this option allows a user to paste a video into a Web page, for example to demonstrate the use of a product for sale, or to present a personal greeting to visitors to the Web page.

By electing to activate the button 860, labeled "Nothing, I'll share this video later," the user can postpone making an election regarding the sharing of the uploaded video segment.

The above options are discussed in more detail below.

Sharing the video by using email will bring up the user's default email browser, such as Outlook, Netscape Communicator, Eudora, etc. This is accomplished through the use of MAPI technologies that allow for document exchange on Win9x/2000 systems. A user who employs Netscape Communicator or Microsoft Outlook will be able to directly embed the Windows Media Player inside the email text body, allowing the recipient to directly play the video from his or her email browser. In one embodiment, this "embedded video

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mail" feature causes a window such as that depicted in FIG. 9 to appear, for example when the user is using Microsoft Outlook for e-mail service.

As shown in FIG. 9, at the top of the email message, the VideoShare Producer 20 software will display the Windows Media Player 910 with the sender's recorded video pre-loaded. The recipient of this embedded video mail only needs to activate the play button 920 on the Windows Media Player to see the video segment, rather than going to a URL hyperlink. The embodiment includes the conventional dialog boxes for entry of an email address for a recipient (box 902), a "carbon copy" ("cc") address (box 904), and a subject (box 906). In the embodiment shown, instructions are presented below the Windows Media Player 910 for the convenience of the recipient.

The two options "Share as a Video Greeting Card" and "Take me to my VideoCenter" causes the VideoShare Producer 20 software to spawn off a Web browser and automatically jump to one of these two pages on the VideoShare Web site. The user can define the features of a video greeting card, and can direct the card as an e-mail to a viewer. Alternatively, the user can define a recipient list for the video segment as a single item to be viewed, and can send the video to the locations on the list.

The "Share Through ICQ Messaging" button 830 can bring up ICQ's Instant Messenger software, if it is installed on the user's machine, and can initiate a "URL Message" construction automatically. The VideoShare Producer 20 software can automatically fill out the URL that references the playback of the user's video. The recipient of this URL Message can view the video by clicking a mouse on the URL to be taken directly to the VideoShare web site, where the video can be displayed.

The "Put HTML code in my clipboard" button 850 can place a section of HTML code that, when the user pastes this code in a web page, causes the Windows Media Player to automatically instantiate a video playback of the message. This feature enables the user to place this video in any system that supports HTML code, such as personal web pages, online auction sites, online job boards, and the like.

Working Offline and the "Sharing Queue"

The Video Share Producer 20 software also allows the user to "work offline." Offline means that the VideoShare Producer 20 software will not communicate with the host computer 60 (for example, the VideoShare Upload/Database Server) until the user explicitly uploads one-or-more videos by using a "Sharing Queue." This Sharing Queue appears to the user as one of the main tabs in the VideoShare Producer 20 software and acts as a temporary queue for recorded/imported videos. "Work offline" allows the user to not make an Internet connection until he or she is ready to upload more than one video at a time. This mode of operation is useful for modem users who incur considerable expense for extended dial-in times or people who are using laptops and are not always near an Internet connection outlet.

FIG. 10 shows a screen 1000 used to control the status of a video queue. When the user, after recording or importing a video, clicks the "Save and Share" button 536 of FIG. 5 while in "offline mode," the VideoShare Producer 20 software performs the first three steps of the "Save and Share Process," namely, the video file format conversion represented by box 615 of FIG. 6A, the compression of the video segment to a streaming multimedia format at a user-specified bitrate represented by the box 635 of FIG. 6A, and the creation of a "Thumbnail" JPEG snapshot of the video file represented by the box 640 of FIG. 6A. The resulting output files are stored in a local database for later use in the "Sharing Queue," which is an operation similar to the temporary storage of files

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depicted in FIG. 6A. In the middle of FIG. 10 is a dialog box 1010 that displays a list of video segments that are ready to be uploaded to the VideoShare Web site. The small “Preview” window 1020 in the upper left corner of FIG. 10 is a DirectShow playback graph that allows the user to review the stored video segment that is highlighted in the dialog box 1010. The user can use this window to preview the video segment file by activating the “Preview” button 1030, to delete the video segment file by activating the “Delete” button 1040, and to upload and publish the video by activating the “Save and Share Now” button 1050.

The “Save and Share Now” button 1050 performs the uploading process on each of the queued videos, creating a TCP/IP connection to the VideoShare Upload/Database Server, transferring the file to the VideoShare web site, and updating the user’s VideoShare account, in a manner substantially similar to the method employed by the Save and Share button 536 of FIG. 5 to accomplish the same activities.

Audio/Video Setting Process

FIG. 11 shows a screen 1100 used to control the operational settings of equipment connected to the user’s computer. Another feature of the VideoShare Producer 20 software is the ability of the user to change the configuration of the audio, video, and compression devices through the use of the “Settings” tab 1110. Upon activation of the Settings tab 1110, the screen 1100 is active.

The user can select the “bitrate” at which the streaming multimedia files will be compressed by using the set of radio buttons 1120 at the upper left corner of the screen 1100. The default setting is “56 k Modem” which corresponds to a user using a 56 k modem. This default setting is denoted by the 56 k Modem radio button 1120 appearing with a dot, while the remaining radio buttons for bitrate 1120 are blank. In one embodiment, the pie graph 1130 that appears at the upper right corner of screen 1100 indicates the percentage of the user’s VideoShare storage space that is full. In the embodiment shown, the user has filled approximately 3.13% of the available storage capacity available for storing files. Two pull-down menus, “Camera source device” box 1140 and “Audio source device” box 1150, list all of the available video and audio capture sources that the user has available on his or her Win9x/2000 machine. The user can select a source of audio or video by activating the appropriate pull-down menu box and locating a device of his or her choosing. To the right of these pull-down menus, there are two buttons, “Video Settings . . . ” 1160 and “Audio Settings . . . ” 1170 that allow the user to change the properties of the currently selected audio and video device. Such properties include image size, capture compression, lighting conditions, and the like. The screen 1100 also provides to the user the current working directory information in the box 1180 and the current queue directory information in the box 1190, which the user can optionally change by entering new values in either or both boxes 1180 and 1190.

EQUIVALENTS

While the invention has been particularly shown and described with reference to specific preferred embodiments, it should be understood by those skilled in the art that various changes in form and detail may be made therein without departing from the spirit and scope of the invention as defined by the appended claims.

What is claimed is:

1. A method of streaming a video to users over a network, the method comprising the steps of:

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receiving, by a receiving computer via a web page, a video file sent by a user on a second computer on a network; executing, by the receiving computer server, in response to receiving the video file, an automated function automatically performing each of:

(b1) converting the video file into a streaming video file comprising a streaming video format, the video file being converted independent from receiving a command to perform such conversion from the user;

(b2) generating an identification tag comprising a video frame image representing a subject matter of the streaming video file and identifying the streaming video file; and

(b3) embedding the identification tag comprising the video frame image into a web page for serving the streaming video file to one or more users on one or more computers on the network.

2. The method of claim 1, wherein the streaming video file comprises an advertisement.

3. The method of claim 1, further comprising uploading, by the user on the second computer, the video file onto the receiving computer via an upload form residing on a web page.

4. The method of claim 1, further comprising: receiving, by the receiving computer, the video file along with information supplied by the user, and transmitting, by the receiving computer via the web page, the information to the one or more users on the one or more computers.

5. The method of claim 4, wherein the information comprises one of an identification of the user or a username of the user.

6. The method of claim 4, wherein the information comprises one of a title of the video file or a comment about the video file.

7. The method of claim 1, wherein the network comprises one or more of: a cellular communication connection, a wire connection or a wireless networking connection.

8. The method of claim 1, wherein the identification tag comprises a uniform resource locator (URL).

9. The method of claim 1, wherein step (b1) further comprises converting the video file into a second video format.

10. The method of claim 1, wherein:

step (b1) further comprises converting the streaming video file comprising the streaming video format into a second streaming video file comprising a second streaming video format; and

step (b2) further comprises generating a second identification tag identifying the second streaming video file and comprising a second video frame image selected from the second streaming video file, the second video frame image representing a subject matter of the second streaming video file.

11. The method of claim 1, wherein the receiving computer comprises a plurality of computing devices.

12. The method of claim 1, wherein the video file is a streaming video file in a streaming video format.

13. The method of claim 1, wherein the web page for serving the streaming video file is accessible to an affinity group of the video.

14. A system for sharing a video over a network, the system comprising:
a receiving computer;
a format conversion module of the receiving computer;
an identification module of the receiving computer;
the receiving computer receiving, via a first web page, a video file sent by a user on a second computer on a network;

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network and executing, in response to receiving the video file, an automated function automatically performing each one of:

converting, by the format conversion module, the video file into a streaming video file comprising a streaming video format, the video file converted independent from receiving a command to perform such conversion from the user;

generating, by the identification module, an identification tag comprising a video frame image representing a subject matter of the streaming video file and identifying the streaming video file; and

embedding, by the receiving computer, the identification tag comprising the video frame image into a web page for serving the streaming video file to one or more users on one or more computers on the network.

15. The system of claim 14, wherein the streaming video file comprises an advertisement.

16. The system of claim 14, wherein the user on the second computer uploads onto the receiving computer the video file using an upload form residing on the first web page.

17. The system of claim 14, wherein the receiving computer receives the video file along with information supplied by the user, and

a sharing module of the receiving computer transmits, via the second web page, the information to the one or more users on the one or more computers.

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18. The system of claim 17, wherein the information comprises one or more of: an identification of the user, a username of the user and a title of the video file.

19. The system of claim 17, wherein the information comprises one or more of: a subject relating to the video file, a date the video segment was produced, or a comment about the video file.

20. The system of claim 14, wherein the identification tag further comprises a uniform resource locator (URL).

21. The system of claim 14, wherein the network comprises one or more of: a cellular communication connection, a wire connection and a wireless networking connection.

22. The system of claim 14, wherein the format conversion module converts the video file into multiple video formats.

23. The system of claim 14, wherein:

the format conversion module converts the streaming video file comprising the streaming video format into a second streaming video file comprising a second streaming video format; and

the identification module generates a second identification tag identifying the second streaming video file and comprises a second video frame image selected from the second streaming video file, the second video frame image representing a subject matter of the second streaming video file.

* * * * *

Exhibit B



US008464302B1

(12) **United States Patent**
Liwerant et al.

(10) **Patent No.:** US 8,464,302 B1
(45) **Date of Patent:** *Jun. 11, 2013

(54) **METHOD AND SYSTEM FOR SHARING VIDEO WITH ADVERTISEMENTS OVER A NETWORK**

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Christopher Dodge, Arlington, MA (US); **Guillaume Boissiere**, Cambridge, MA (US)

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(*) Notice: Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 1827 days.

This patent is subject to a terminal disclaimer.

(21) Appl. No.: 09/631,583

(22) Filed: Aug. 3, 2000

Related U.S. Application Data

(63) Continuation-in-part of application No. 09/497,587, filed on Feb. 3, 2000, now abandoned.

(60) Provisional application No. 60/147,029, filed on Aug. 3, 1999.

(51) **Int. Cl.**
H04N 7/173 (2011.01)

(52) **U.S. Cl.**
USPC 725/115; 725/86; 725/87; 725/91;
725/92; 725/98; 725/105; 725/109; 725/112;
725/114

(58) **Field of Classification Search**

USPC 725/32
See application file for complete search history.

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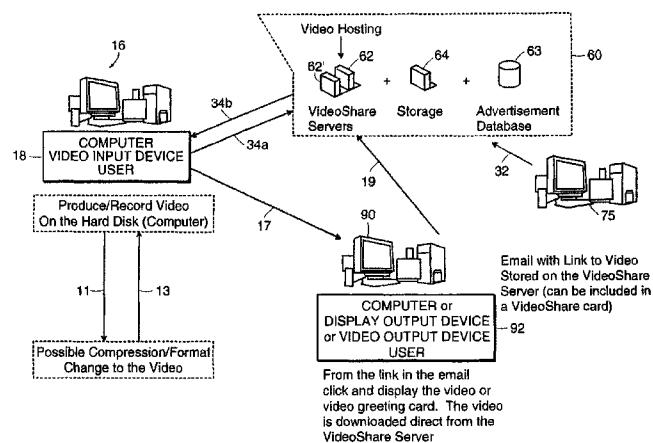
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Primary Examiner — Dominic D Saltarelli

(74) *Attorney, Agent, or Firm — Guerin & Rodriguez, LLP*

(57) **ABSTRACT**

A user can create a video segment or employ an existing video segment, upload the segment to a server, indicate an advertisement to be associated with the video, and then send it to a recipient over a computer network. The user provides an indication that one or more particular video segments and advertisements are to be shared over the network. The video segment(s) is/are then automatically assessed and determined to be compatible with streaming video, or not. If the video segment(s) is/are not compatible with streaming video, it/they are converted to a compatible format automatically. An identifier for the video segment is automatically created and the segment and the identifier are automatically uploaded to a host computer over the network such as the Internet. The video segment, the identifier (optionally with other identifying material such as an identity of the sender, and an advertisement selected by the sender can be stored at the direction of the host computer. A viewer can be sent an identifier of the video, and can request that the video be served as a streaming video to the viewer's computer. Alternatively, the viewer can be sent a location of the video such as a URL, can be served



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the video as an embedded portion of a Web page, or can be served the video as a consequence of being sent a link in an e-mail or as an e-mail greeting card.

17 Claims, 16 Drawing Sheets

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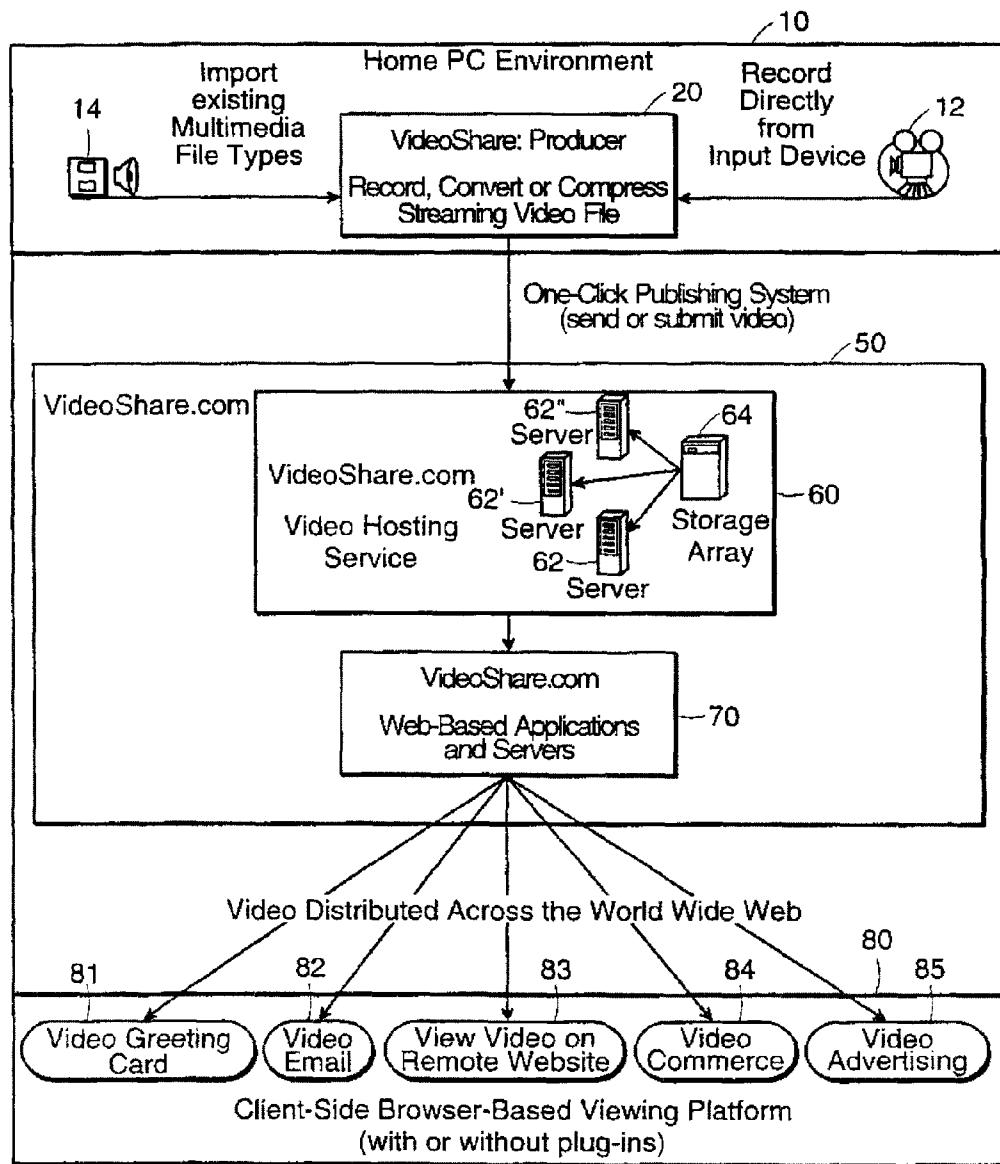


FIG. 1A

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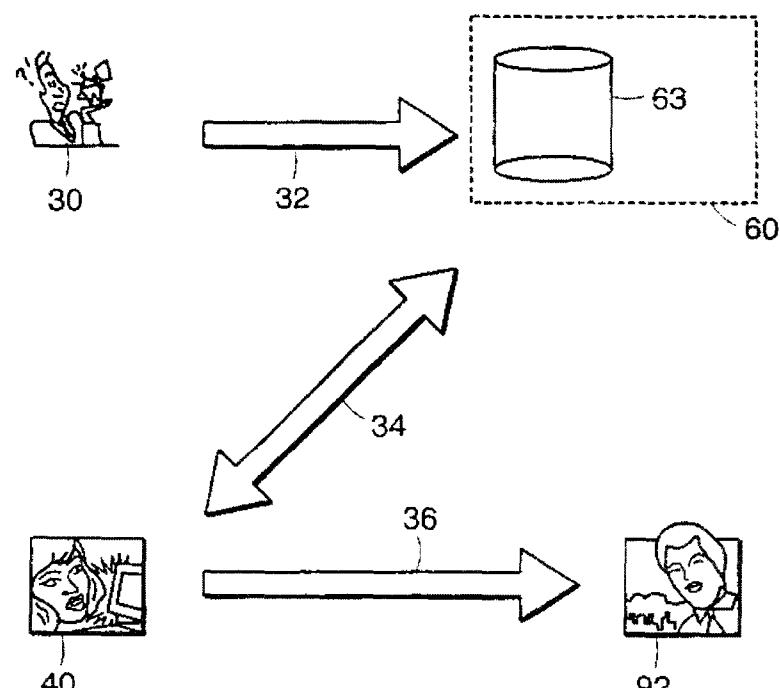


FIG. 1B

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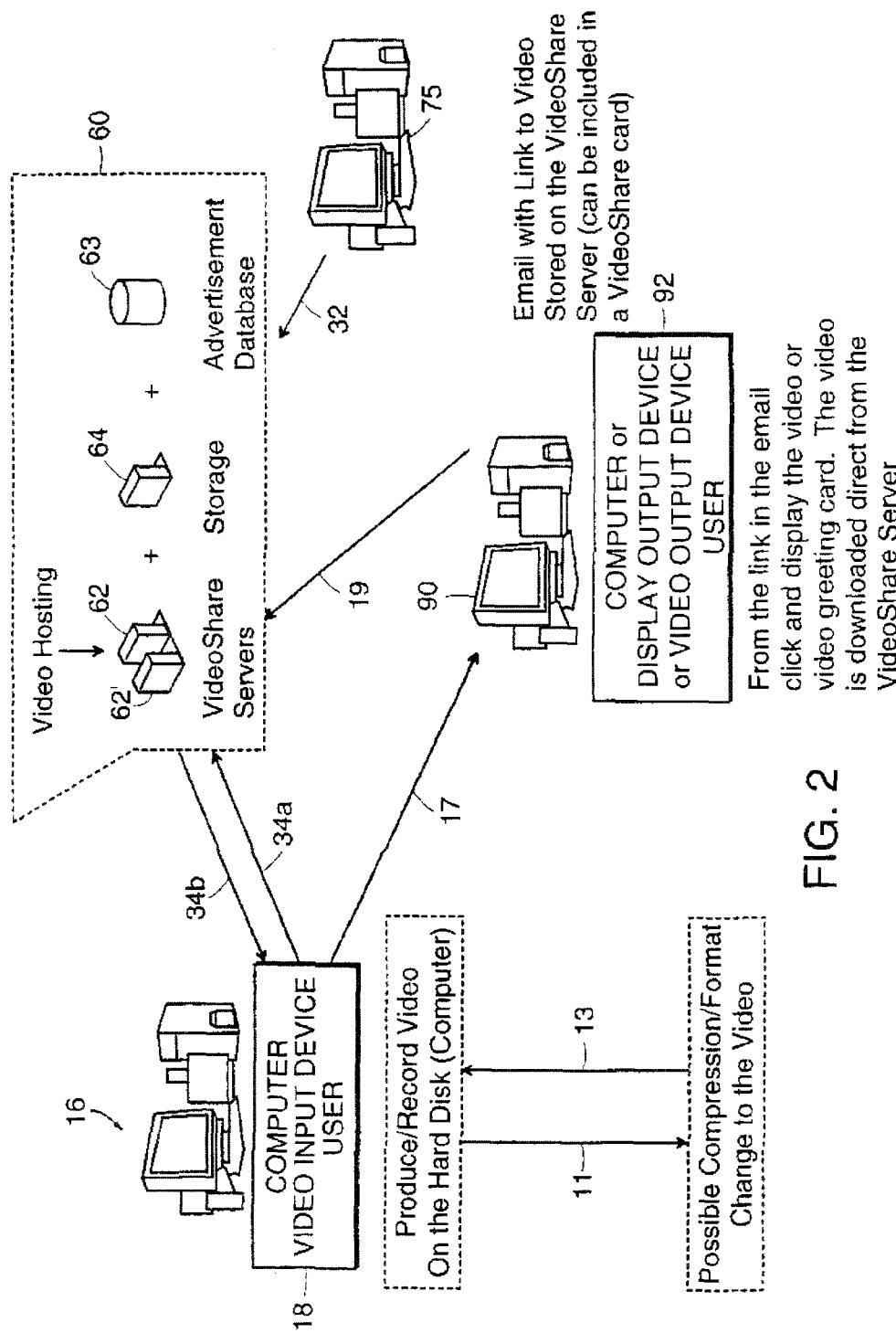


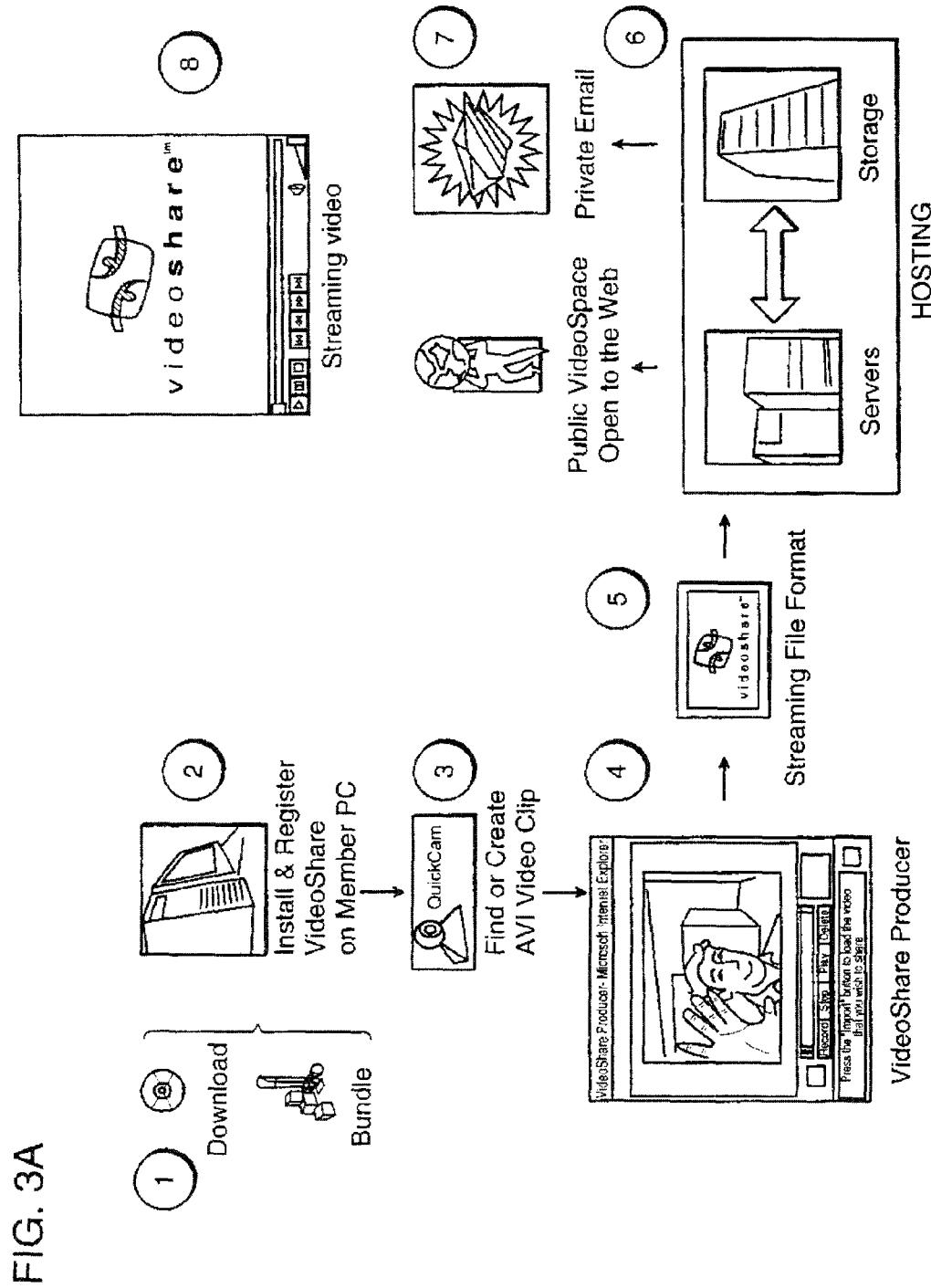
FIG. 2

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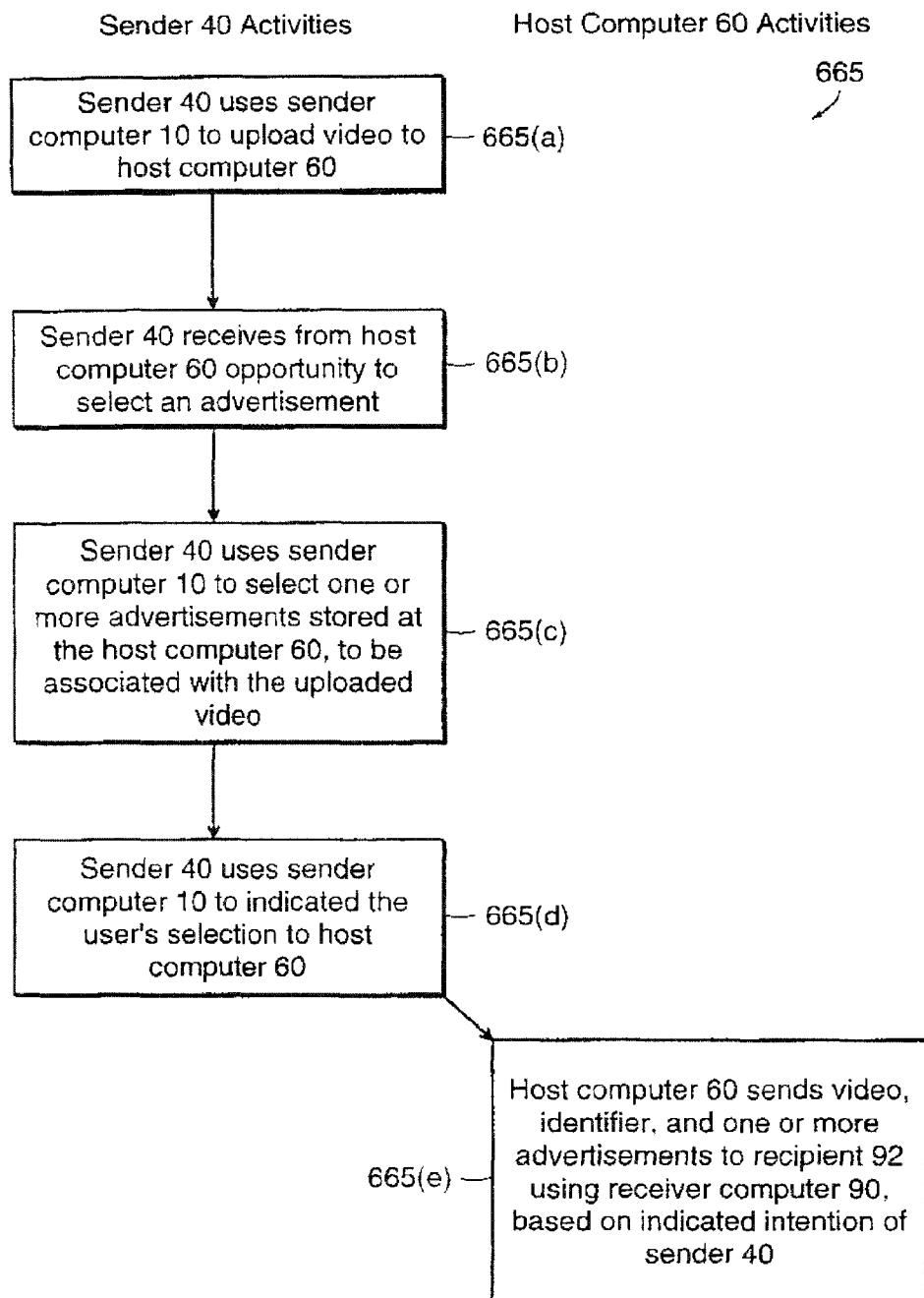


FIG. 3B

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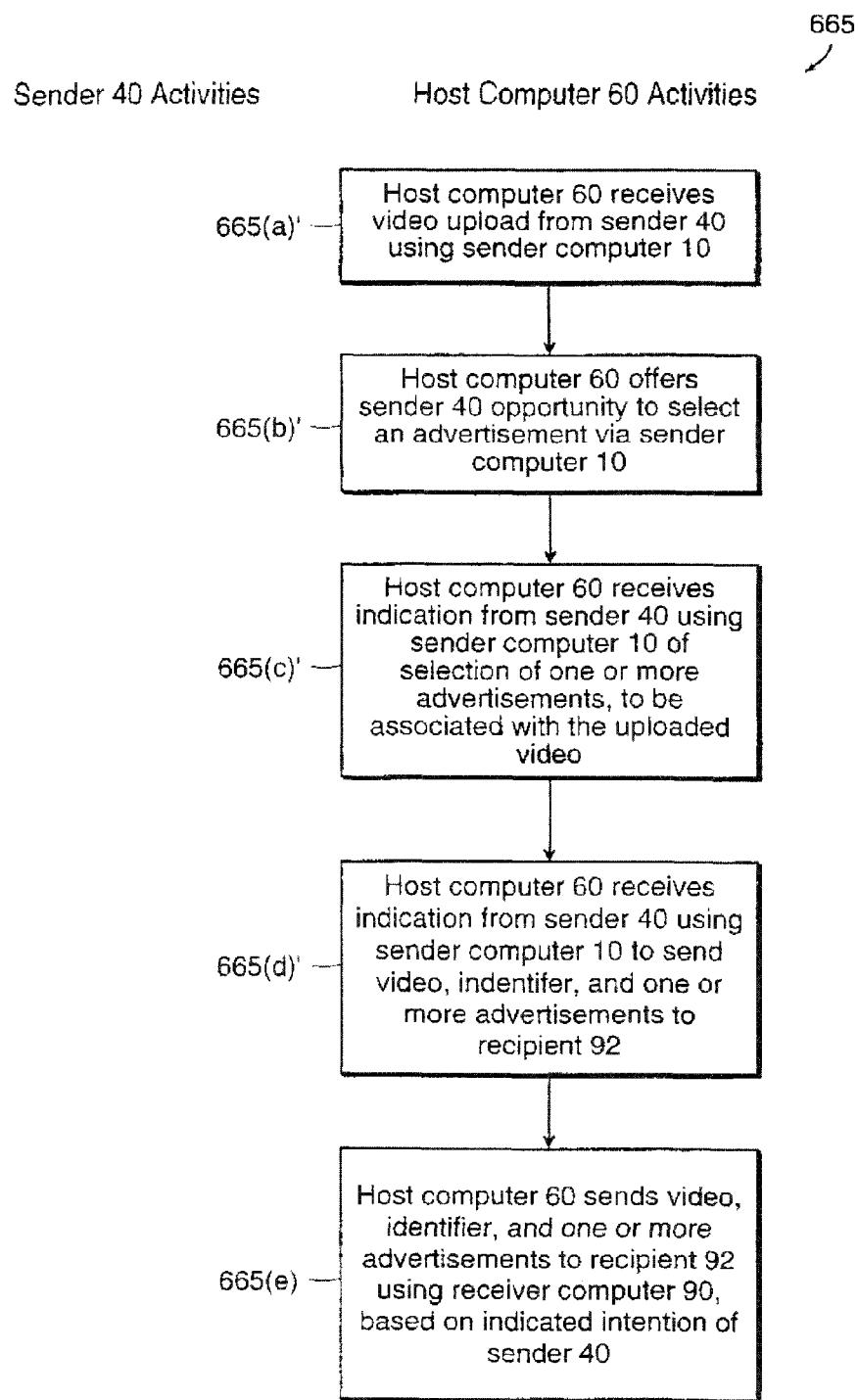


FIG. 3C

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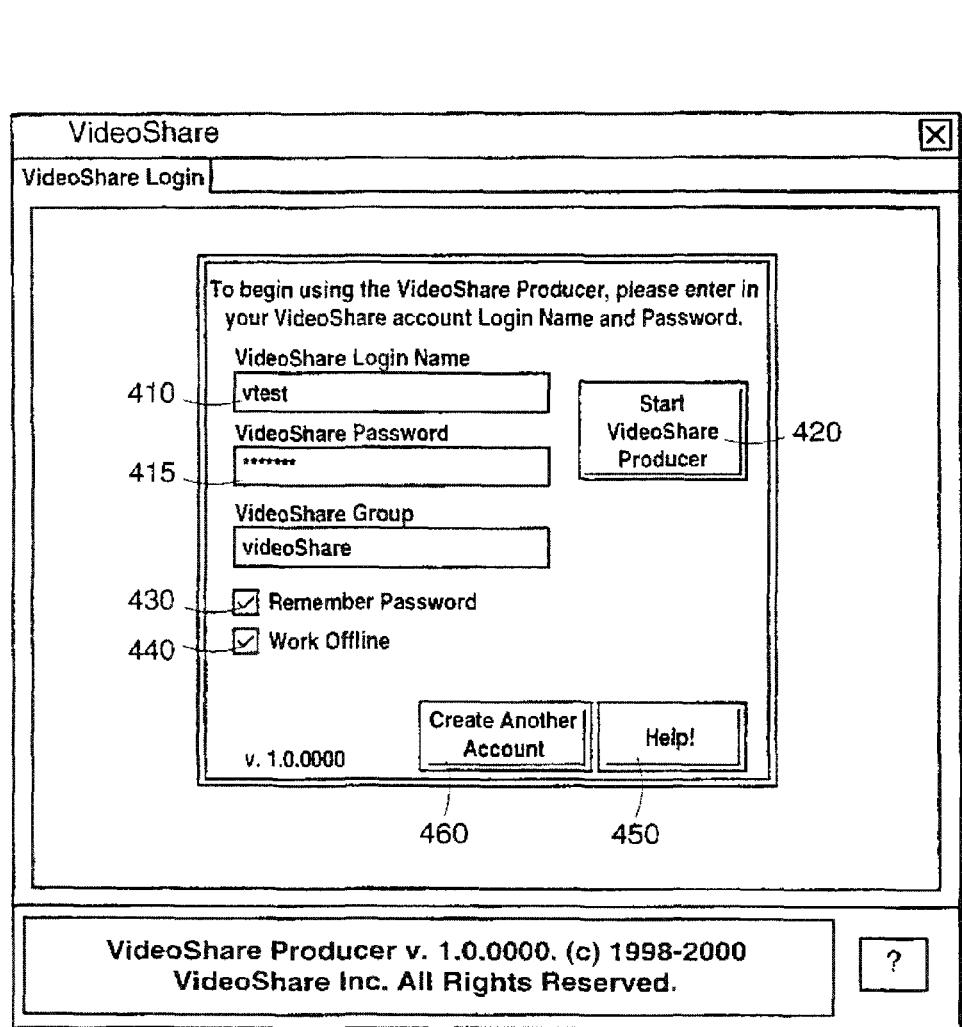


FIG. 4

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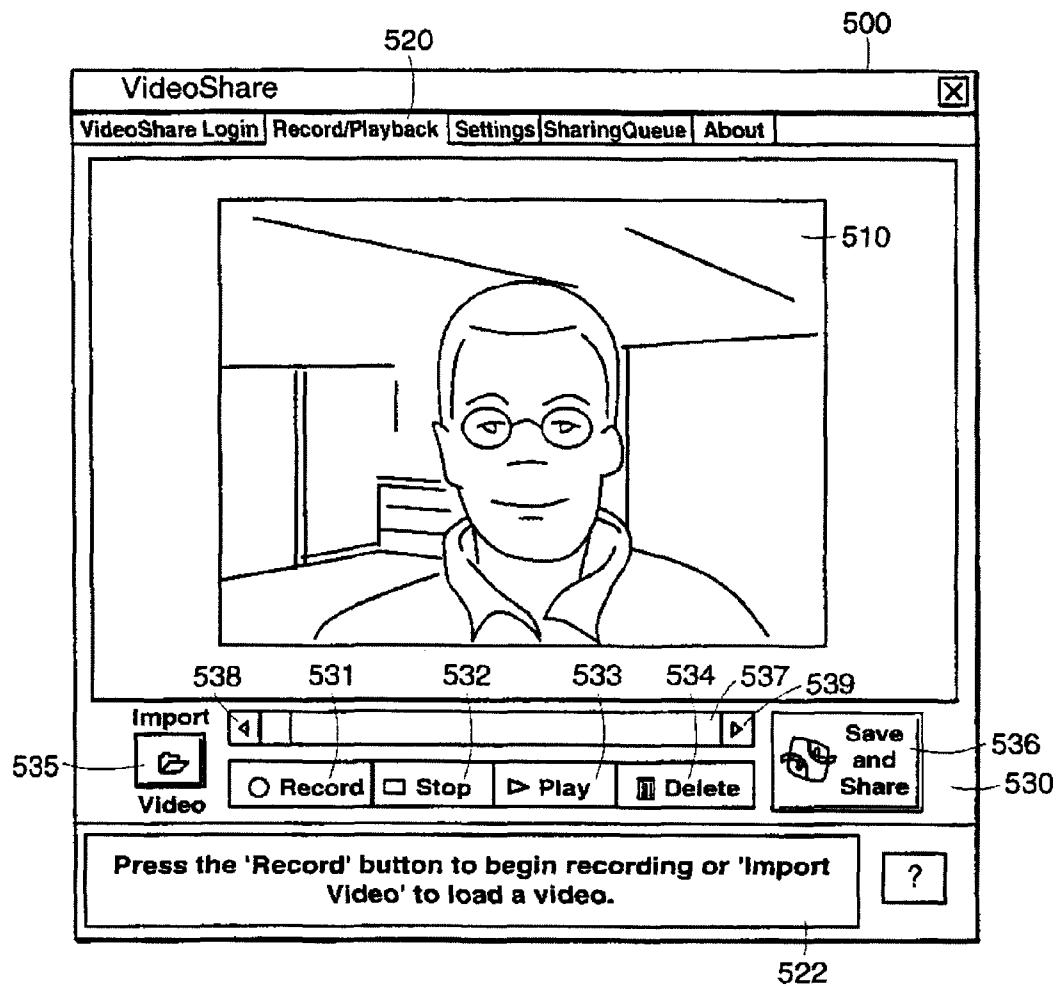


FIG. 5

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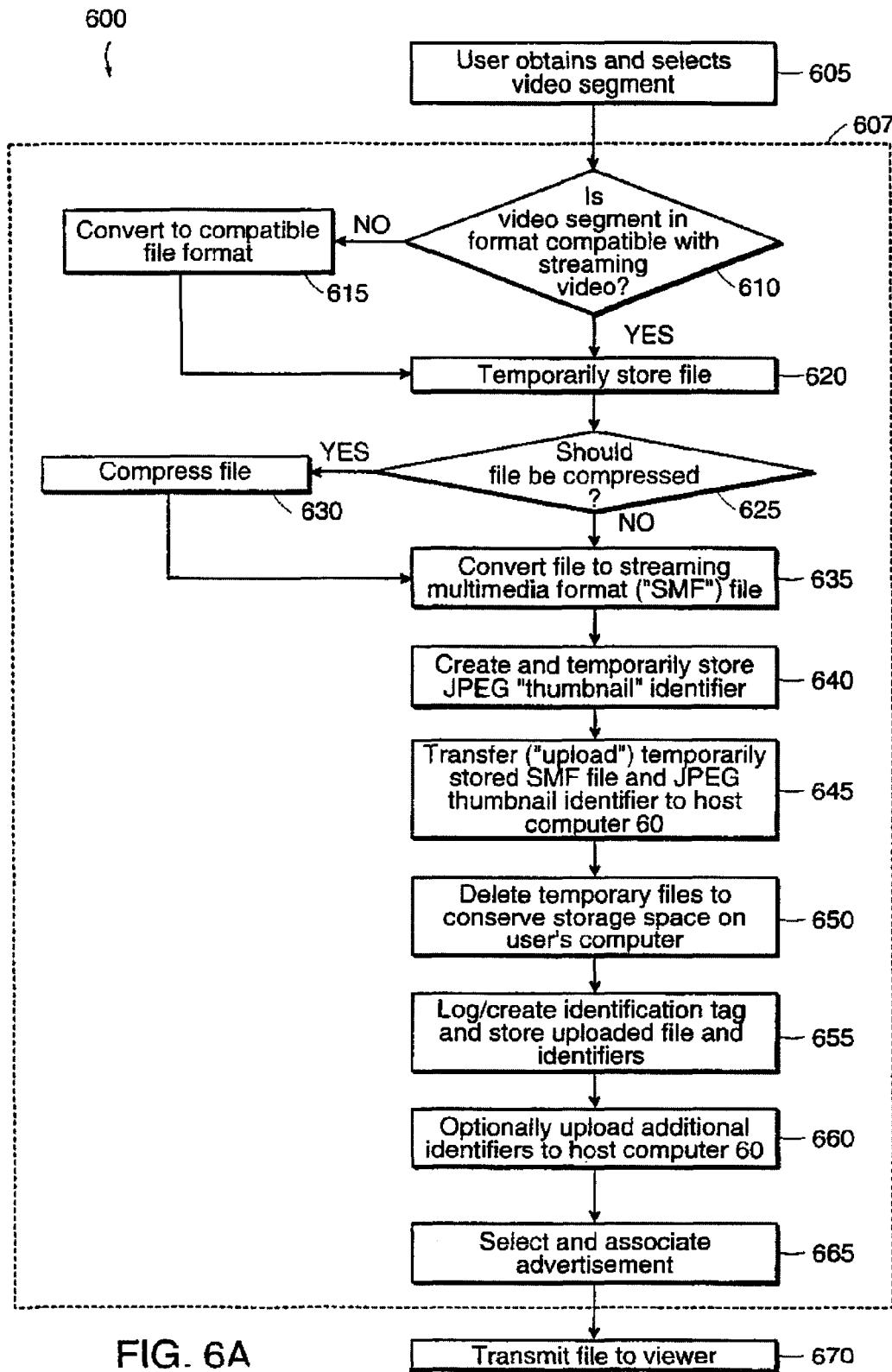


FIG. 6A

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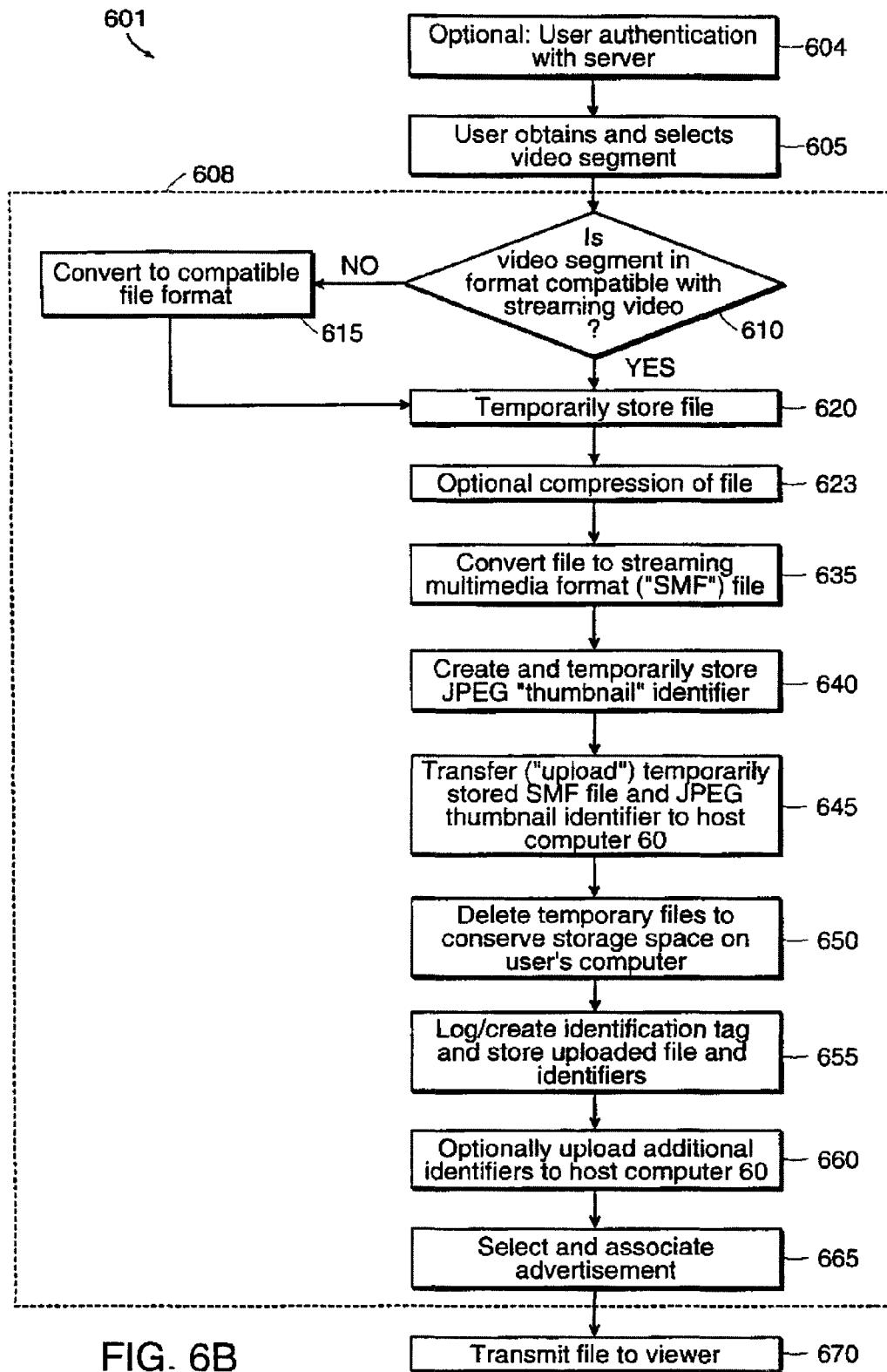


FIG. 6B

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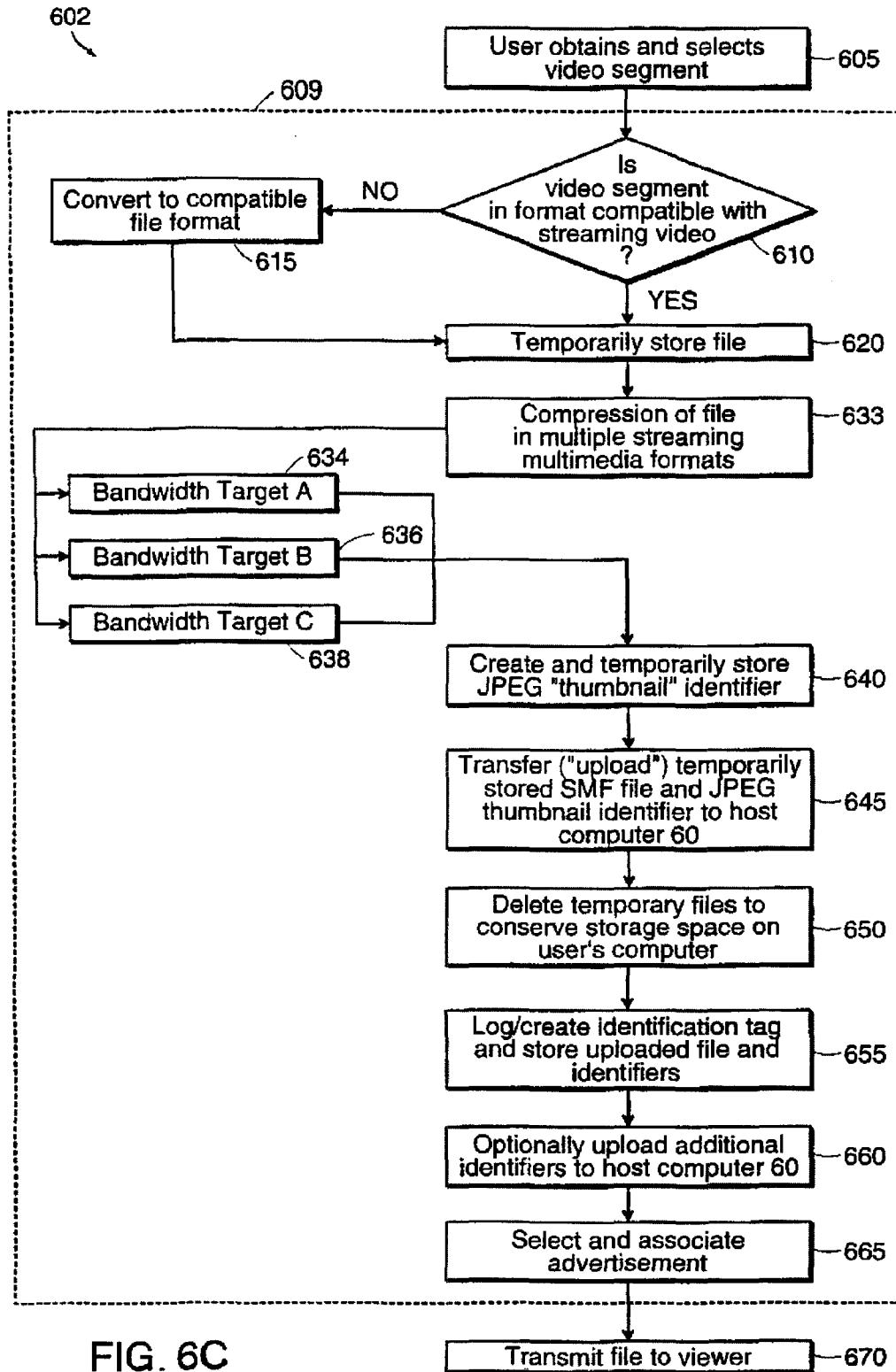


FIG. 6C

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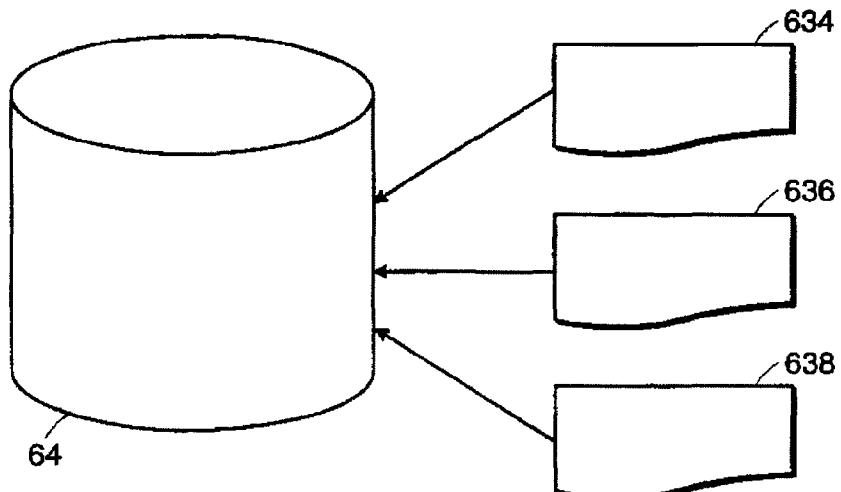


FIG. 6D

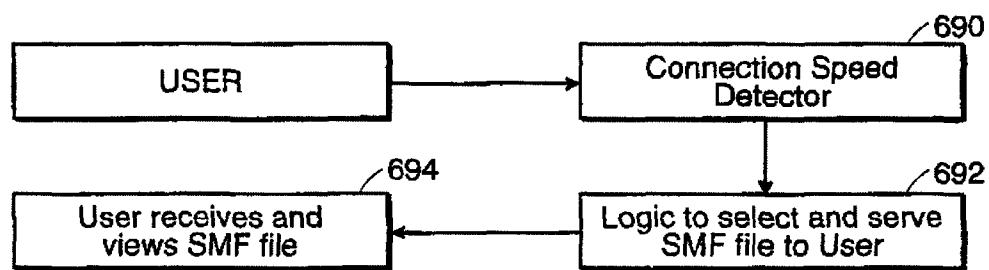


FIG. 6E

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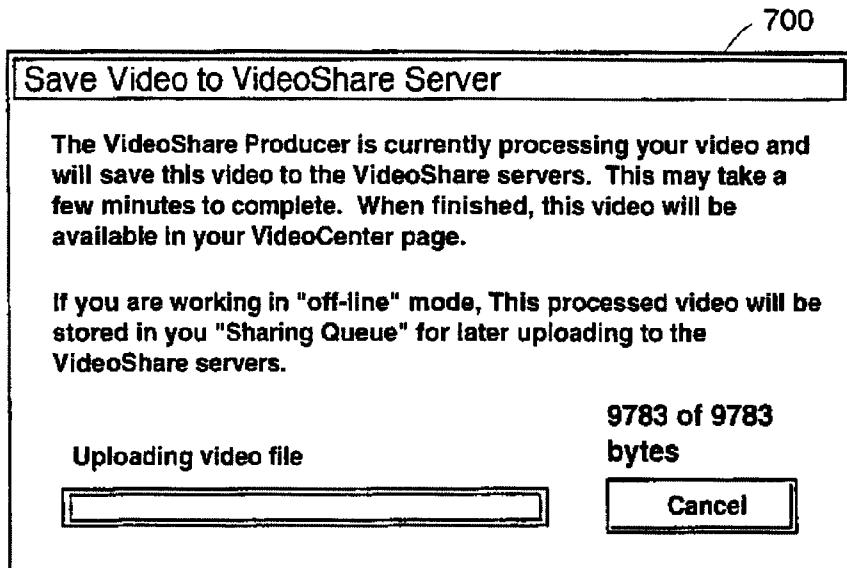


FIG. 7

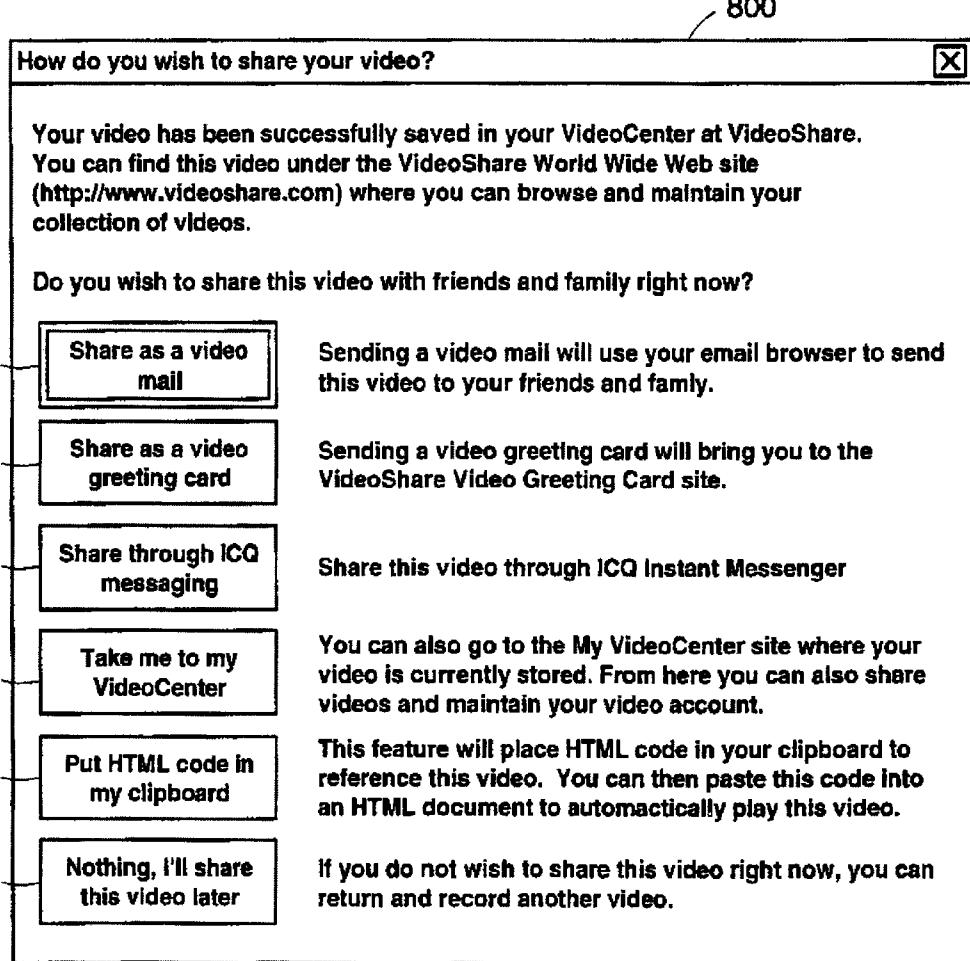


FIG. 8

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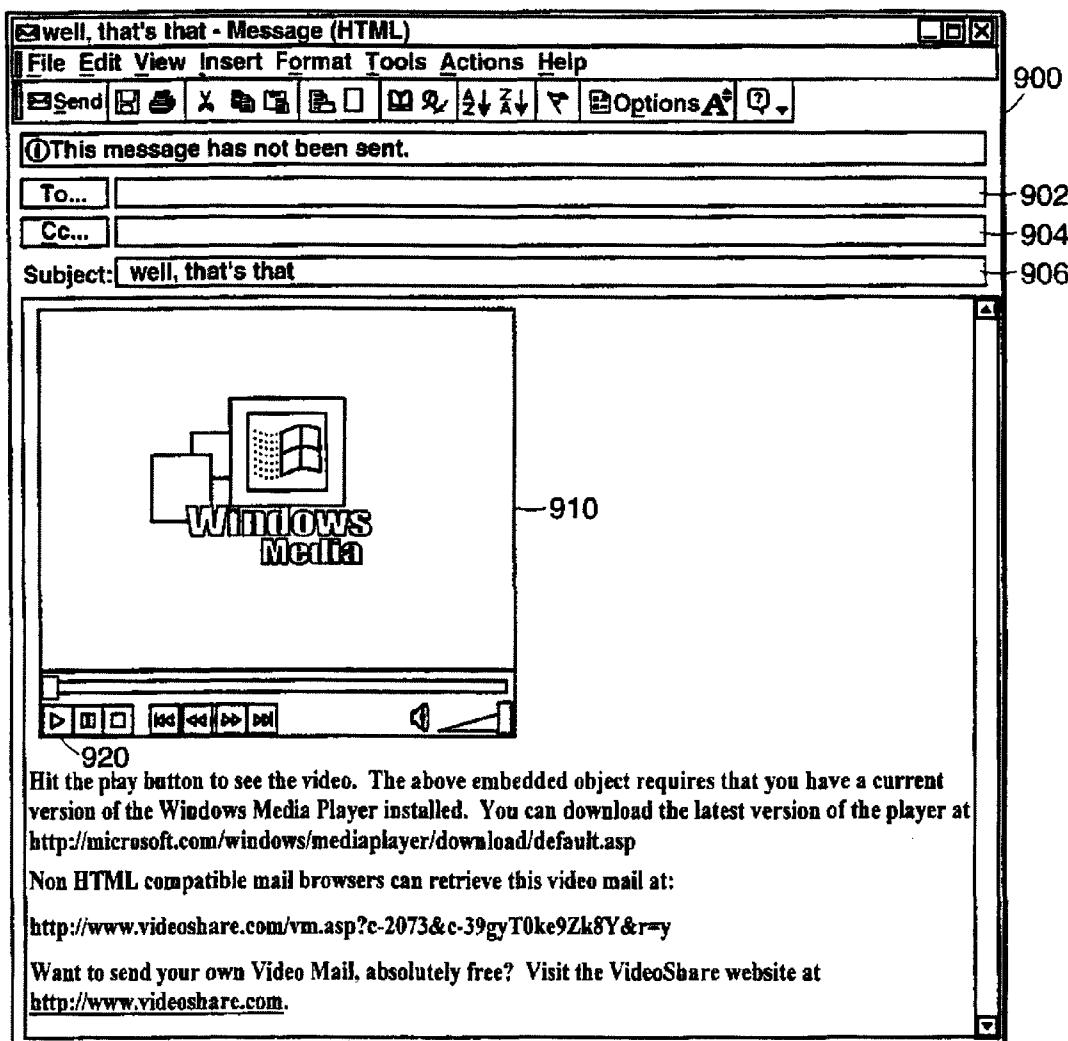


FIG. 9

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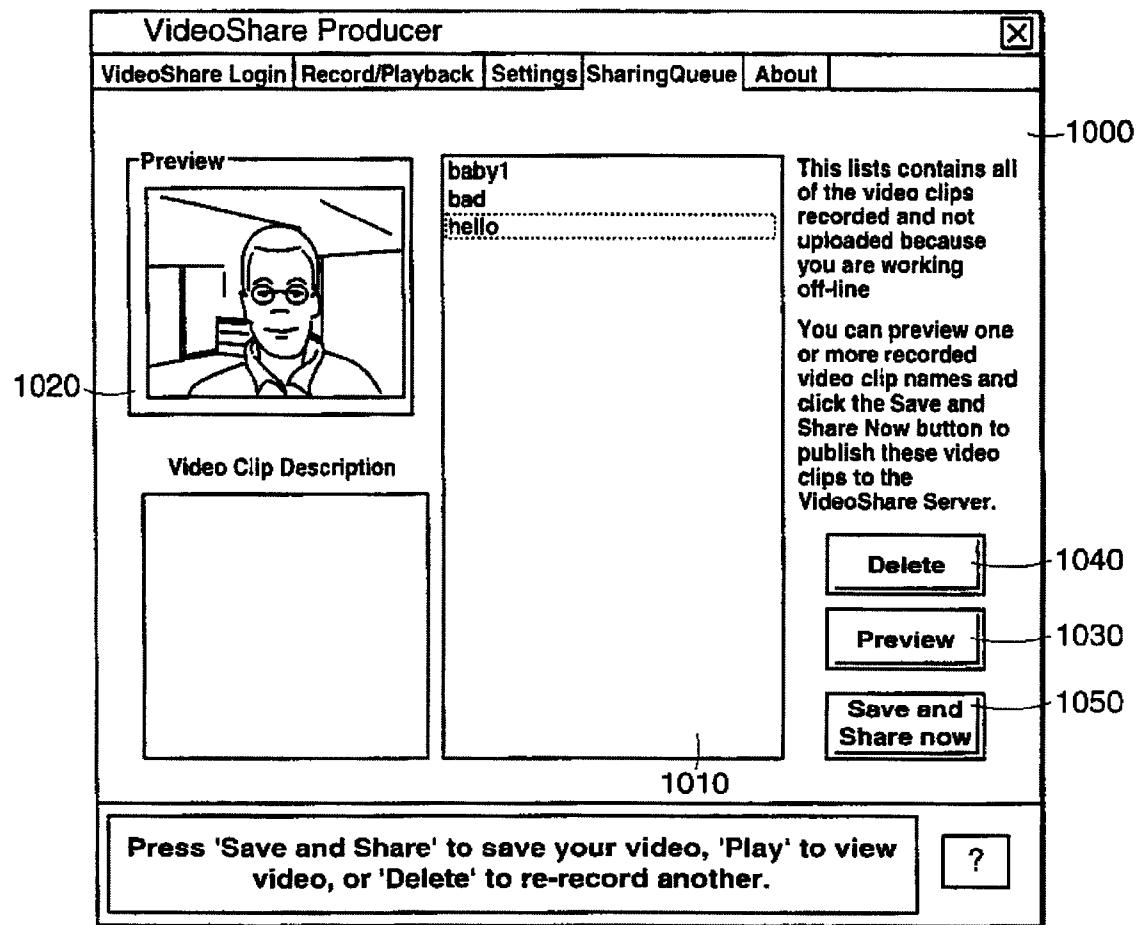


FIG. 10

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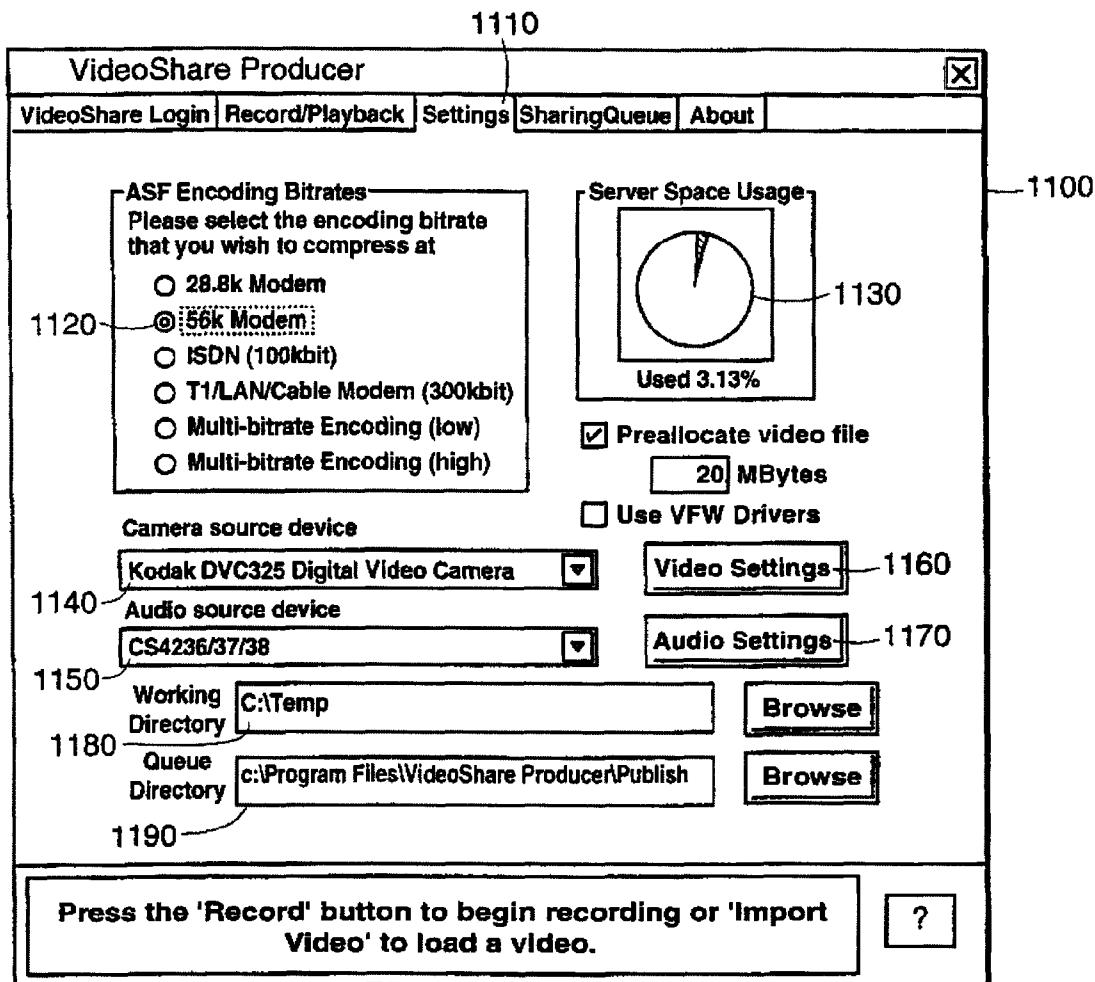


FIG. 11

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**METHOD AND SYSTEM FOR SHARING
VIDEO WITH ADVERTISEMENTS OVER A
NETWORK**

CROSS-REFERENCE TO RELATED CASE

This application is based on and claims priority to and the benefit of Provisional U.S. Patent Application Ser. No. 60/147,029, filed on Aug. 3, 1999, the entirety of which is hereby incorporated herein by reference. This application is a continuation-in-part of U.S. patent application Ser. No. 09/497,587, filed Feb. 3, 2000, the entirety of which is hereby incorporated herein by reference.

TECHNICAL FIELD

This invention relates generally to the distribution of video segments. More particularly, the invention relates to sharing in streaming video format over a network a video to which an advertisement selected by the sender of the video has been attached.

BACKGROUND INFORMATION

A video can be sent over a computer network as a file attachment to an electronic mail (e-mail) message. With this type of transmission, the entire video file must be transmitted and received before the receiver can view the video. For large files, the time required to complete such transmissions can be longer than the actual playing time of the video. Also, this type of transmission typically requires multiple computer programs to perform all of the necessary functions, including an e-mail application program to send or receive the video in computer file form, and a second program to play or display the video from the received file attachment. With this type of transmission, it is difficult to control the delivery time of the video, and it is difficult to share or forward the received video.

A video can be posted to a World Wide Web ("Web") page. In order to provide a video in this manner, a server computer connected to the Web must be used to host the Web site, and software packages must exist and be used to prepare the video, and transmit it over the Web using the File Transfer Protocol (FTP or ftp) or the HyperText Transfer Protocol (HTTP or http). To implement this type of video posting, at least a detailed knowledge of various computer communication protocols is required.

SUMMARY OF THE INVENTION

It is an object of this invention to provide methods and systems for sharing video segments over a network, to which video segments a sender of a video segment can attach an advertisement of the sender's choosing. The video segment and associated advertisement can then be streamed over the network, for example the Internet, to a receiving computer such that a person at the receiving computer can view the video segment and the associated advertisement.

In accordance with the present invention, full motion video can be automatically uploaded to a video server and can then be associated with an advertisement selected by the sender of the video. The video and associated advertisement can be accessed by any number of viewers after each viewer has been provided with an identifier of the video. The video identifier can in general be an identification tag which identifies where and/or how the video can be accessed, for example a network address, or a universal resource locator ("URL"). The video can also be identified with an image that represents the con-

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tent or subject matter of the video, so that the video can readily be identified when held in a collection of videos. Such identifiers as file names that are useful in a computer file processing, storage and retrieval system can further identify the video.

In one aspect, the invention features a method of sending a video segment and an associated advertisement over a computer network. The method includes (a) acquiring a video segment at a computer system, (b) acquiring one or more advertisements at the computer system, (c) offering to a sender an opportunity to indicate a selection of an advertisement of the one or more advertisements to be associated with the video segment, and (d) accepting from the sender the indication of a selection of the advertisement to be associated with the video segment, the video segment and the advertisement to be sent over the computer network. The method further includes, in response to the indication accepted in step (d), automatically at the computer system assuring that the video segment is in a streaming video format, creating an identifier for the video segment, associating the video segment and the advertisement, and sending the video segment, the identifier, and the associated advertisement over the computer network to a receiving computer system.

In one embodiment, the step of offering to a sender an opportunity to indicate a selection of an advertisement of the one or more advertisements includes a criterion selectable by the sender. The criterion can be one of a subject of the advertisement, a length of the advertisement, and a remuneration paid for selecting the advertisement. The criterion can include affirmatively leaving the selection to the determination of the server computer system.

In one embodiment, the step of offering to a sender an opportunity to indicate a selection of an advertisement of the one or more advertisements can include a default selection to be made if the sender fails to indicate a selection. The default selection can include a substantially randomized selection of an advertisement.

In another aspect, the invention relates to a method of sending a video segment and an associated advertisement over a computer network. The method includes (a) uploading a video segment from a sender computer system to a server computer system, (b) selecting, using the sender computer system, an advertisement stored at the server computer system, and (c) transmitting from the sender computer an indication of an intent to send the video segment and the advertisement over the computer network, the indication causing the server computer system automatically to assure that the video segment is in a streaming video format, to create an identifier for the video segment, to associate the video segment and the advertisement, and to send the video segment, the identifier, and the associated advertisement over the computer network to a receiving computer system.

In one embodiment, selecting an advertisement can include selecting an advertisement using a criterion chosen by an operator of the sender computer system. The criterion can be one of a subject of the advertisement, a length of the advertisement, and a remuneration paid for selecting the advertisement. The criterion can include leaving the selection to the determination of the server computer system. The selection can include a substantially randomized selection of an advertisement. The selection can be based on a price paid by an advertiser.

In one aspect the invention involves a system for sending a video and an associated advertisement over a computer network. The system includes a first computer system for connection to other computer systems over a computer network. The first computer system includes a first module operating

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on the first computer system for acquiring a video segment, a second module operating on the first computer system for generating an identifier associated with the video segment, a third module operating on the first computer system for accepting an indication of intent to send the video segment to another computer, a fourth module operating on the first computer system for automatically sending the video segment and the identifier over the computer network to a receiving computer, and a fifth module operating on the first computer system for accepting from a sender an indication of an advertisement to be associated with the video segment and for transmitting the indication to another computer. The system also includes a second computer system comprising storage and for connection to other computer systems over the computer network. The second computer system includes a sixth module operating on the second computer system for automatically receiving the video segment and its associated identifier sent by the first computer system over the computer network, a seventh module operating on the second computer system for storing an advertisement, an eighth module operating on the second computer system for associating the advertisement with the video segment, a ninth module operating on the second computer system for storing the video segment and associated identifier in the storage, a tenth module operating on the second computer system for receiving an indication to associate the stored video segment and the advertisement, an eleventh module operating on the second computer system for automatically assuring that the video segment is in a streaming video format, and a twelfth module operating on the second computer system for sending the video segment, the identifier, and the associated advertisement from the storage to a receiver computer system.

In one embodiment, the system further includes a thirteenth module operating on the second computer system for determining a price to be charged for one or more of storing the advertisement, associating the advertisement with the video segment, and sending the video segment, the identifier, and the associated advertisement from the storage to the receiver computer system. In one embodiment, the module can determine the price based on a number of transmissions of the video and the associated advertisement multiplied by a rate of charge per transmission. The rate of charge can be based on one of a type of video, a length of the video, and a quality of the video. In another embodiment, the module can determine the price based on a fixed price. Alternatively, the module can determine the price based on a percentage of a sales amount incurred in response to the advertisement.

In one embodiment, the system further includes a module operating on the second computer system for obtaining from a user of the first computer an indication of which advertisement is to be associated with the video sent by the first computer. The module for obtaining an indication of which advertisement is to be associated with the video can use a criterion for the association. The criterion can be one of a subject of the advertisement, a length of the advertisement, and a remuneration paid for selecting the advertisement. In yet another embodiment, the module for obtaining an indication of which advertisement is to be associated with the video can use a criterion for the association that includes leaving the selection to the determination of the server computer. The selection can include a substantially randomized selection of an advertisement.

In still another embodiment, the system further includes a fourteenth module operating on the second computer system for determining whether an operator of the receiver computer system is present during the presentation of the advertisement.

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In a further embodiment, the system further includes a third computer system for connection to other computer systems over a computer network, the third computer system including a fifteenth module operating on the third computer system for, determining whether an operator of the receiver computer system is present during the presentation of the advertisement. The fifteenth module for determining whether an operator of the receiver computer system is present during the presentation of the advertisement can include a module that causes the display of the advertisement to pause, and a module that senses if an action is performed by the viewer of the advertisement. The module that senses if an action is performed by the viewer of the advertisement can sense one of a button activation, a switch activation, an activation of a pointing device, a response to a prompt, and a physical response of the viewer. The prompt can be in the form of a question. The physical response of the viewer can be one of a voluntary action and a physiological response.

In a still further embodiment, the system further includes a module that determines what events will transpire in response to the action by the viewer. The module that determines what events will transpire in response to the action by the viewer can cause the commencement or resumption, as appropriate, of the display of one of the advertisement and the video segment; it can cause one of the advertisement and the video segment to terminate; and it can cause a predetermined response to occur if the viewer fails to take action within a predefined time interval.

In yet another embodiment, the system further includes a module that reports one of the action of the viewer and the time of the action to the second computer.

In a still further embodiment, the system further includes a sixteenth module operating on the second computer system for determining a payment to be made to one of a sender of an advertisement associated with a video segment and a viewer of the advertisement.

The foregoing and other objects, aspects, features, and advantages of the invention will become more apparent from the following description and from the claims.

BRIEF DESCRIPTION OF THE DRAWINGS

The objects and features of the invention can be better understood with reference to the drawings described below. The drawings are not necessarily to scale, emphasis instead generally being placed upon illustrating the principles of the invention.

FIG. 1A is a schematic embodiment of a process and system for obtaining a video segment, uploading the video segment to a server, and sending the video segment to a recipient, according to the invention.

FIG. 1B is a schematic diagram of a process and system for selecting and associating an advertisement to the video which is obtained, uploaded, and sent to a recipient as in FIG. 1A, according to the invention.

FIG. 2 is an embodiment of a system according to the invention, including the interactions and interrelationships within the system.

FIG. 3A is a functional block and flow diagram of an embodiment of the invention.

FIG. 3B is another functional block and flow diagram of an embodiment of the invention, showing from the sender's perspective the steps in associating a video with an advertisement.

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FIG. 3C is another functional block and flow diagram of an embodiment of the invention, showing from the host computer's perspective the steps in associating a video with an advertisement.

FIG. 4 is a login screen on a user's computer, in one embodiment of the invention.

FIG. 5 is a record/playback screen as seen by the user, in accordance with an embodiment of the invention.

FIG. 6A is a flow diagram of an embodiment of the invention in which software automates a number of steps in connection with the uploading of a video segment.

FIG. 6B is a flow diagram of another embodiment of the invention in which software automates a number of steps in connection with the uploading of a video segment.

FIG. 6C is a flow diagram of an embodiment of the invention in which software automates a number of steps in connection with the formatting of a video segment.

FIG. 6D shows the relationship of some of the files created in the flow diagram of FIG. 6C.

FIG. 6E is a flow diagram of a method by which an optimally formatted video segment is sent to a user according to the invention.

FIG. 7 is a screen as seen by the user, the screen indicating that file processing is occurring.

FIG. 8 is an interactive screen used to determine the desires of the individual who sends a video for storage.

FIG. 9 is a video playback screen seen by the user.

FIG. 10 is a screen used by the user to control the status of a video queue.

FIG. 11 is a screen used by the user to control the operational settings of equipment associated with the user's computer.

DESCRIPTION

Referring to FIG. 1, a user of the system, such as a private individual working from home, or a professional working from a business, employs a computer system 10. The computer system 10 can include a computer which can be a personal computer of conventional type such as a desktop or laptop computer, a hand held device such as a PDA, or a more powerful computer such as a workstation, a server, a mini-computer, a mainframe, or the like. The computer system 10 can operate software including a web browser such as Microsoft Internet Explorer or Netscape Navigator or Communicator or the like, for communication over a network such as the Internet via the World Wide Web (hereinafter "the Web"), or to permit wireless communication. The computer system 10 can operate software that can manipulate video segment files. The computer system 10 can communicate with video sources, such as video cameras and video recording machines, if the user wishes to employ such sources. Conventional commercially available personal computers typically have sufficient capability to meet these requirements. The computer system 10 can also employ video segments generated digitally by the computer and appropriate software, or by another computer, if the user wishes to employ such techniques. In one embodiment, the computer system 10 operates a software package called VideoShare Producer 20, which will be described and explained in more detail below.

The VideoShare Producer 20 is a software application package that the user can download from the Web site www.VideoShare.com 50 or that the user can obtain in other formats such as on a CD-ROM or bundled with other software or hardware. The VideoShare Producer 20 software can be operated by the user under his control on his computer, in the computer system 10, in order to provide the capability of

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recording, converting, and optionally, compressing video segments, creating one or more identifiers for a video segment, and transmitting a video segment with one or more of the identifiers to a host computer 60 operating under the control of a host such as www.VideoShare.com 50 for storage at a location under the control of the host computer 60. The host computer 60 will be described further below.

An indicator from a user of a system and/or method according to the invention of an intent to send the video segment over the computer network is accepted and, in response to the indication, the video segment is automatically sent as a machine-readable file together with its associated identifier over the computer network to a receiving computer, thereby allowing the sent video segment and its associated identifier to be stored at the direction of the receiving computer and thereafter streamed out over the network.

The computer in the computer system 10 of the user one can be connected to one or more kinds of equipment for generating video segments, such as a video camera such as a Web cam 12 or another type of video camera such as a professional quality video camera. The computer in the computer system 10 of the user can be connected to one or more kinds of equipment for providing prerecorded video segments, such as a video recorder 14, or another computer that can create digital video segments through the use of suitable software, such as for example digital video segments that have been created for various commercial films, or the like. Once the user has obtained a video segment, and has manipulated it according to the procedures described below with regard to the operation of the VideoShare software package, or its equivalent, the video segment with one or more identifiers is transmitted to the host computer 60.

The host computer 60 includes one or more server computers 62, 62', 62" that communicate via a network such as the Web with other computers, such as the computer in the user's computer system 10. The one or more server computers 62, 62', 62" also communicate with a storage array 64, or optionally with a plurality of storage arrays substantially similar to storage array 64. The storage array 64 can be any convenient storage system, such as a redundant array of magnetic storage disks, one or more readable and writeable CD-ROMs, random access semiconductor memory, any combination of such storage devices, or the like. In one embodiment, the host computer 60 operates the www.VideoShare.com 50 Web site, and provides a video hosting service to one or more users. The host computer 60 can connect via the Web and the web site www.VideoShare.com 50 to one or more computers that comprise the Web, conceptually denoted by the box 70, which, while not a part of the www.VideoShare.com 50 Web site, appears to be transparent to users of the www.VideoShare.com 50 Web site, as well as to viewers of video segments that are being hosted by the host computer 60.

Viewers, or individuals who desire, or are invited, to view video segments hosted on the host computer 60, can access video segments hosted on the host computer 60. As will be described in more detail below, in one embodiment, video segments can be hosted on host computer 60 in areas that are open to the public, or can be hosted in other areas that are open only to viewers who have the appropriate permission or authorization to view a specific video segment. A hosted video segment that is stored and controlled by the host computer 60 may be delivered to and displayed for a viewer in a variety of formats, and through a variety of methods, as denoted generally by the box 80. In different embodiments, a video segment can be displayed as: a video greeting card 81, such as a person wishing another a happy birthday; as video email 82, as video that can be viewed on a remote website 83

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(e.g., a video segment embedded into the remote website so that a viewer who visits the remote website sees the video segment as part of the page that is presented); as video commerce **84**, for example a video that depicts a person describing his or her experience and training as part of a resume submitted on-line; or as a video advertisement **85**, for example a video depicting the benefits or showing the use of a product. Many other like applications of the technology can be envisioned. In various embodiments, the video segment can be made available to the viewer as a streaming video that is sent to the viewer, or may be made available by sending the viewer a message such as an email that contains an address of a location to visit on the Web (e.g., a Universal Resource Locator, or URL), or may be made available by sending the viewer a message that contains an embedded link to a URL, for example by sending an e-mail containing the link or by sending a still image that may have some interest to a viewer (e.g., sending a grandmother a still image of her grandchildren) to which a link is attached (e.g., the still image is linked to a streaming video of the grandchildren that is delivered and that plays when the still image is clicked). In the latter two methods of making a video segment available, or in like methods, the viewer must take some action, such as employing the URL or activating the link. In some embodiments, the viewer can use a hand held device such as a PDA or a cellular telephone that can connect to a network such as the Internet to view the video segment.

FIG. 1B is a schematic diagram that shows a process and system for selecting and associating an advertisement to the video which is obtained, uploaded, and sent to a recipient as in FIG. 1A. In FIG. 1B, an exemplary advertiser **30** submits an advertisement to an advertisement database **63** which is part of the VideoShare host computer **60** of FIG. 1A, and which is accessible by the host computer **60**. The advertisement can be a video clip, a still image, or an audio file, or it can be a combination of two or more of these formats. The advertisement is recorded in the advertisement database **63**, which is a machine-readable medium. The submission of the advertisement by the advertiser **30** is depicted by the arrow **32**. There can be a plurality of advertisers **30** and each advertiser **30** can submit one or more advertisements for posting in advertisement database **63**.

According to the principles of the present invention, when exemplary user (or sender of a video) **40** uploads a video, using the user's computer **10** (which can also be referred to as sender computer **10**), to the host computer **60**, the host computer **60**, using software that operates on the host computer **60**, offers the sender **40** an opportunity to indicate a selection of an advertisement of the one or more advertisements posted to advertisement database **63** to be associated with the video segment that sender **40** has uploaded to the host computer **60**. The sender **40** can be shown all or part of one or more advertisements, which can be categorized by type (e.g., areas of interest such as consumer goods, travel, entertainment, household goods, financial products, business services, hobbies, recreation, and the like), which can be categorized by duration, and which can be categorized by an amount the advertiser is willing to pay a sender and/or a viewer. The advertisements can also be categorized in many other ways. In an alternative embodiment, the sender **40** can specify types of ads that he or she wants shown. In yet another embodiment, the host computer **60** (or the entity that controls it) can select which advertisement will preferentially be offered to the sender **40** as part of the group of advertisements that are available.

Bidirectional arrow **34** denotes a process in which the host computer **60** offers the opportunity to the sender **40** to expe-

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rience various advertisements, using sender computer **10** and software that is present and operating on sender computer **10**, and the sender **40** can respond, using sender computer **10** and its associated software, to the host computer **60** by selecting one or more advertisements for association with the video that the sender **40** has uploaded to host computer **60**. The sender **40** can transmit from the sender computer **10** an indication of an intent to send the video segment and the advertisement over the computer network to a recipient **92**.

In response to receiving the indication, the host computer **60** and its associated server computer system **62, 62'** automatically perform a series of actions. The actions include assuring that the video segment is in a streaming video format, creating an identifier for the video segment, associating the video segment and the advertisement, and sending the video segment, the identifier, and the associated advertisement over the computer network to a receiving computer system, such as computer **90** of FIG. 2, where the recipient **92** can view the video segment and the associated advertisement. The video segment, with or without an associated advertisement, can also be referred to as a video message. The process of sending the video message to the recipient **92** is schematically denoted by the arrow **36** from the sender **40** to the recipient **92**. The entire process will be described in further detail below.

In FIG. 2, the exemplary advertiser **30** sends an advertisement to the host computer **60**, which includes servers **62, 62'**, advertisement database **63**, and storage **64**, from a computer **75** that is connected to host computer **60** by a computer network, as depicted by arrow **32**. It is also possible for an advertiser to transmit an advertisement recorded in machine-readable form on any convenient machine-readable storage medium.

A machine-readable medium can be used to record any information that can be presented in digital format, including computer code, text, images, sounds and the like. The information can include advertisements, videos, audio information or the like, or it can include computer instructions, data, or other matter useful in operating digital equipment. The information is typically recorded on the machine-readable medium as one or more symbols in a file. The machine-readable medium can be, for example, a computer floppy disk, a computer hard drive, a magnetic tape or the like, a CD-ROM, computer memory such as static or dynamic RAM, ROM, PROM, EPROM or the like, and/or any other mechanism or medium for storing machine-readable files, instructions, data or software. In a network, the machine-readable medium can be physically attached to a computer different from one on which the data may be used, or the software may operate. For example, in a network, an archival copy of software can reside on one computer and a copy can be copied to another computer, where the copy is executed or otherwise used. If transfer time is not an issue, as when a viewer of a video puts off viewing to a later time, a file containing data or information (such as a video, a text file, a database file, a spreadsheet template or the like) may reside on the same computer as the one that received the file, or on a different computer that stores the file for the convenience of the viewer. These are only some examples of commonly available machine-readable media, and it will be apparent to those of ordinary skill in the computer arts, that many other kinds of machine-readable media can be used with equal effect. The advertisement that the advertiser **30** sends to the advertiser database **63** from the advertiser computer **75** can be created in any manner that can be used for making advertisements, for example, by having a professional advertisement agency oversee the making of one or more advertisements.

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The exact manner in which the advertisement is peripheral to the invention, but there are mechanisms by which one or more advertisements from one or more advertisers 30 come to be posted on the advertisement database 63. An advertiser can be charged a fee for posting and/or storing an advertisement, for associating the advertisement with the video segment, and for sending the video segment, the identifier, and the associated advertisement from the host computer 60 and its components to the receiver computer system 90 of a viewer 92.

Many different approaches to determining a price that an advertiser will be charged are possible. Advertisers can be charged a premium price to get preferential placement on an advertisement selection page of the host computer 60. Prices for such preferential placement can be determined by an auction mechanism. Alternatively, the operator of the host computer 60 can attempt to match prices advertisers 30 are willing to pay for advertising with the remuneration that senders 40 and viewers 90 are prepared to accept.

Similarly, there are many ways that senders 40 and viewers 92 of advertisements may be induced to participate. Examples of possible schemes to remunerate senders 40 and viewers 92 can include paying a sender 40 a set price based on the number of times an advertisement is viewed, paying a sender 40 based on a scale that increases with volume of ad views, and paying a viewer 92 for viewing an advertisement. The payment can take the form of money, in-kind payments (e.g., free services), and other incentives, including special promotions based on the number of advertisements sent or viewed.

In FIG. 2, the computer 16 of the user's computer system 10 is shown. The box 18 is intended to schematically depict a user of a computer video input device, which device can be the computer 16 operating suitable software to generate digital video, or can be another such computer, or can be the web cam or video camera 12, or can be the video recording device 14, or the like. The video input device can be a Web camera, a personal computer, a laptop computer, a personal digital assistant or PDA, a video cassette recorder or VCR, a video camera, a movie camera, a video game console or any device that can be configured to upload video segments and images to the video server. The user begins by producing and/or recording a video segment on the hard disk of the computer 16 or within the temporary memory of a handheld device. As a second step, the video segment of step 1 can optionally be compressed and/or can be changed as regards the computer file format in which it is recorded on the hard disk. This is depicted by arrows 11 and 13, between the steps of Produce/Record Video on the Hard Disk, and Possible Compression/Format Change to the Video.

As a third step, the video segment recorded on the hard drive of the computer 16 is transmitted with one or more identifiers to the host computer 60 that includes the VideoShare servers 62, 62' and the storage array 64. The video segment is stored under the control of the host computer 60, which can generate an identification tag that the host computer 60 can use to locate the stored video segment for retrieval and for viewing. A video segment can be uploaded to the video server over a network such as the Internet or by the use of wireless communication, or by a combination of both. The video server can include local or remote storage for storing the uploaded video images. A video segment can be accessed from the video server over a network such as the Internet or by the use of wireless communication, or by a combination of both.

In different embodiments, the identification tag can be provided to a user in the form of a URL, or can be embedded into a Web page on a remote site, or can be linked to a

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message. In one embodiment the message can be a still image that can be selected from the video segment. The third step is schematically depicted by the arrow 34a pointing generally from the computer 16 to the VideoShare servers 62, 62'.

A fourth step involves offering the sender 40 the opportunity to associate an advertisement with the uploaded video, as described before. This is represented by the arrows 34a and 34b, in a manner similar to that of FIG. 1B.

As a fifth step, the user who stored the video can send a message to an intended viewer, so that the viewer can access and view the video segment. The fifth step is schematically depicted by the arrow 17 pointing generally from the computer 16 to the computer 90 of the viewer. The box 92 is intended to schematically depict a user of a display device. In one embodiment, the display device can be the computer 90, or the display device can be a display device such as a Web TV, or can be a video output device such as a television set with a suitable decoder, or the like. The video output device can be any device that can be configured to allow a user to access and view the video segments and images including but not limited to a television, a computer, a PDA, a video camera, or a video game console. The display device can also be a wireless hand held device such as a PDA or a cellular telephone or the like.

In a fifth step, the viewer activates the viewing of the video segment. The viewer's action is indicated schematically by the arrow 19 pointing generally from the computer 90 to the server computer 62, 62'. In one embodiment the viewer activates a link by clicking a button, and the server computer 62, 62' responds by sending a streaming video segment that the viewer observe. The streaming video segment can in one embodiment be delivered as part of a video greeting card 81. In an alternative embodiment, the video can be delivered as a streaming video directly to the viewer from the host computer 60, without the viewer having to activate the host computer 60. The viewer 92 can, in different embodiments, take certain actions, as will be described below, in response to the video, its associated identifier, and the associated advertisement being sent to the viewer 92. These actions will be addressed in more detail below.

As shown in FIG. 3A, the user can obtain a copy of the VideoShare Producer 20 software by downloading a copy of the software from the Website www.VideoShare.com 50, as indicated by the picture at numeral 1. The term VideoShare Producer 20 software as used herein is intended to include the software that is required to interact with the host computer 60 to effectuate the necessary actions associated with dealing with advertisements. Alternatively, the user can obtain a copy of the VideoShare Producer 20 software on machine readable media such as a CD-ROM or the like. The VideoShare Producer 20 software can be bundled with one or more utility or application programs that are useful for a user to have, such as a "container" application so that the VideoShare Producer 20 software can be operated on a desktop computer. The user can install the VideoShare Producer 20 software on his or her computer 16 and can register with the VideoShare.com hosting service at no charge. In registering for the VideoShare service, the user obtains a username and a password that can be used to identify the user. The activity of installing the VideoShare Producer 20 software on the user's personal computer or the like and registering with the VideoShare system is indicated by the picture at the numeral 2.

In order to use the system, the user first obtains a video segment. The user can create the video segment, for example with a Web cam 12, or the user can use an existing video segment obtained from a video recorder 16, as indicated by

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the picture at the numeral 3. The VideoShare Producer 20 software has direct capture capabilities that permit the user to create the video segment.

The user can employ the VideoShare Producer 20 software to optionally compress the video; to determine if a video segment is in a format that is compatible with streaming video; to convert the video to a file format that is compatible with streaming video if the video segment is not already in a file format that is compatible with streaming video; and to transmit the video segment together with one or more identifiers that represent selections that the user can make (for example, a still image selected from the series of images that comprise the video segment, an identifier of the sender of the video segment (e.g., the user), an access privilege associated with the video segment, information indicative of a time period during which the video segment will be accessible, and information indicative of a number of instances that the video segment may be accessed). The identifier is associated with the video segment. The activities carried out in conjunction with the VideoShare Producer 20 software are generally indicated by the graphic at numeral 4.

The video segment and the identifier(s) are transmitted to the host computer 60 for storage and for later distribution. In one embodiment, the video segment is transmitted in a streaming video file format. This transmission activity is denoted by the graphic at numeral 5.

The video segment is stored under the control of the host computer 60, which can include one or more server computers 62 and storage array 64. The activity of receiving the video segment at the host computer 60 and storing the video segment and its identifier(s) is denoted by the pictures at numeral 6.

Depending on the choice of the user as to access privileges, the video segment can be stored as a publicly available video in a location in storage array 64 that has no restrictions on access, or it can be stored in a portion of storage array 64 that requires some form of authorization to enable access, such as in a private email account area. The storage of the video segment as a public or private video segment is denoted by the pictures at numeral 7.

Upon request from a viewer who has the proper authorization, or upon any request in the case of a video segment available publicly, the host computer 60 sends the video in streaming video format to a viewer, who can observe the video in real time using a conventional web browser without additional plug-in modules. The activity of serving the video segment as a streaming video is denoted by the graphic at numeral 8.

Additional features of the software, that specifically deal with the interactions the sender 40 carries out with the host computer 60 will be discussed in FIG. 3B and FIG. 3C.

FIG. 3B is another functional block and flow diagram of an embodiment of the invention, showing from the sender's perspective the steps in associating a video with an advertisement. At step 665(a), the sender 40 uses sender computer 10 to upload a video to host computer 60. At step 665(b), the sender 40 receives from host computer 60 an opportunity to select an advertisement from among those recorded or posted in advertisement database 63. At step 665(c), the sender 40 uses sender computer 10 to select one or more advertisements stored at the host computer 60, to be associated with the uploaded video. At step 665(d), the sender 40 uses sender computer 10 to indicate the user's selection to host computer 60. At step 665(e), the host computer 60 sends a video, its identifier, and one or more advertisements to a recipient 92 using receiver computer 90, based on indicated intention of sender 40.

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FIG. 3C is another functional block and flow diagram of an embodiment of the invention, showing from the host computer's perspective the steps in associating a video with an advertisement. In step 665(a), the host computer 60 receives a video upload from the sender 40 using sender computer 10. In step 665(b), the host computer 60 offers the sender 40 an opportunity to select an advertisement via sender computer 10. In step 665(c), the host computer 60 receives an indication from the sender 40 using sender computer 10 of the selection of one or more advertisements, to be associated with the uploaded video. In step 665(d), the host computer 60 receives an indication from the sender 40 using sender computer 10 to send a video, its identifier, and one or more advertisements to recipient 92. Optionally, step 665(d) can be included in step 665(c) by inference, or it can be explicitly performed. At step 665(e), the host computer 60 sends a video, its identifier, and one or more advertisements to a recipient 92 using receiver computer 90, based on indicated intention of sender 40.

FIG. 3B and FIG. 3C are identified as step 665 generally. Step 665 appears in each of FIG. 6A, FIG. 6B and FIG. 6C, where the one step is identified as "Select and associate advertisement." It is intended that FIG. 3B or FIG. 3C be referred to, as appropriate, in understanding that step 665 is in reality a series of substeps that involve both the sender 40 using his or her sender computer 10 and the host computer 60, both computers using software that is designed to support the necessary signaling and communication between the two computers. As those who are familiar with software will recognize, the software can equally well be replaced with firmware (e.g., software code committed to a memory such as a ROM or PROM or the like) or to hardware (e.g., circuitry designed to transmit and to accept signals that perform substantially the same functionality as the software). It is possible to use software, firmware and hardware in combination, or in substitution one for the other, to carry out such signaling and communication tasks. It is possible to program software using one or more different programming languages, with substantially the same effect.

The majority of the VideoShare Producer 20 software was developed as a Windows 95, Windows 98, and Windows 2000 ("Windows 9x/2000") compatible ActiveX control (e.g. an .OCX file), with additional components existing as active template library (ATL) component object model (COM) components that are instantiated during runtime. A "container application," named "VideoProducer.exe," allows the VideoShare Producer ActiveX Control to be executed from the Windows 9x/2000 desktop. The VideoShare Producer Active X Control can also be embedded into a web page, as is done within the www.VideoShare.com 50 web site.

The custom written VideoShare Producer 20 software includes the following binary/source code components: (1) VideoShare Producer ActiveX Control (VideoProducer.ocx); (2) JPEG ATL COM component (jpeg.dll); (3) Thumbnail Acquisition DirectShow (ThumbnailFilter.ax); (4) Extended MAPI interface (MapiExAPI.dll); (5) ICQ interface (icq-glue.dll); AND (6) VideoShare Upload/Database Server (vps-erver.exe).

All components, except for significant portions of the JPEG component that uses public domain source code, were entirely written by VideoShare Inc. The VideoShare Upload/ Data Server constantly runs at the VideoShare Hosting Facility, an embodiment of the host computer 60, with which an installed instance of the VideoShare Producer 20 software on a user's computer 16 can be in constant communication. The VideoShare Producer 20 software client/server structure

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allows the user to upload videos to his or her account through the “Save and Share” button that is described later.

The VideoShare Producer **20** software is built upon the following third-party technologies that provide lower-level device support, document sharing, and file format conversion: (1) Microsoft’s DirectShow; (2) Microsoft’s Windows Media Technologies; (3) Microsoft’s Video for Windows; (4) MAPI; AND (5) ICQ.

When the user launches the VideoShare Producer **20** software, he or she will see the window depicted in FIG. 4 appear on his or her computer **16** operating the Win9x/2000 operating system. The login screen can be made optional for repeat users by providing a unique identifier for the user, such as a password, or by installing on the user’s computer or the like a record similar to the “cookies” used by some interactive computer systems operating on a network such as the Internet.

When the user enters in his or her username in the box **410** labeled VideoShare Login Name and his or her password in the box **415** labeled VideoShare Password and activates the “Start VideoShare Producer” button **420**, the VideoShare Producer **20** software opens a TCP/IP socket connection to the VideoShare Upload/Database Server via port **80** in order to avoid typical Firewall and/or Proxy Server problems. If the box **430** labeled Remember password is checked, the VideoShare Producer **20** software will remember the user’s password, eliminating the necessity to type in that information each time the software is started. The VideoShare upload/Database Server then verifies the validity of the username/password. Furthermore, the VideoShare Producer **20** software will notify the user if there is a more recent version of the software available, giving him or her the opportunity to automatically download and install the new software.

Also at this point, the user can choose to work offline by checking box **440** “Work offline”, which suspends communications to the VideoShare Upload/Database Server until the user has filled his or her “Sharing Queue” as described later. The ability to work offline is principally of use for people with computers that do not have a continuously open Internet connection, e.g. computers that use telephone modems rather than high speed connections or equipment such as cellular telephones or hand held devices that require the user to dial in to establish a connection. With this login dialog, the user can also receive help, by activating the “Help” button **450**, taking the user to a web page on the VideoShare web site. The login dialog box can also be used to create a new VideoShare user account, by clicking the “Create Another Account” button **460**.

Once the login process has been completed, the VideoShare Producer **20** software looks for available DirectShow audio and video capture devices. These available devices are enumerated and listed within the “Settings Tab” as described later. The VideoShare Producer **20** software initializes the audio and video capture device, by recalling as a default the device that was used most recently.

VideoShare Producer Preview/Capture/Import Process

After the capture device initialization, the VideoShare Producer **20** software displays the window depicted in FIG. 5.

The image **510** in the middle of the window is the video input stream from the initialized, default video capture source. The image in FIG. 5 is that of an employee of the assignee of the present invention, in the offices of the assignee. The VideoShare Producer **20** software automatically builds a DirectShow “preview graph” where the video stream from the video device is displayed on the screen, but is not saved to disk. This gives the user the opportunity to adjust

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the camera, e.g. an opportunity to correct the camera position, the camera focus, the camera angle, the magnification of the image, and the like.

At the top of this window, the user is presented with five different “tabs”, each presenting the user with different aspects of the VideoShare Producer **20** software. In FIG. 5, the tab labeled “Record/Playback” **520** is active, indicating that the VideoShare Producer **20** software is ready to acquire and/or display a video segment.

At the bottom of the window, there is a status message **522** that displays the current operation of the VideoShare Producer **20** software. In FIG. 5, the status message **522** prompts the user to either activate the Record button **531** to create a new video segment, or to import an existing video segment by activating the Import Video button **535**, both of which are described in more detail below.

Directly below the video preview image **510** is a Capture/Playback Control Panel **530** that includes the following items:

Record button **531** which begins a new audio/video capture;
 Stop button **532** which terminates an active audio/video capture operation;
 Play button **533** which initiates the playing back of the last recorded or imported video;
 Delete button **534** which cancels the last record or import operation and begins a new video preview;
 Import Video button **535** which allows the user to select a pre-existing video file from his or her hard drive;
 Save and Share button **536**, which in the present embodiment activates software modules that convert the current video file into a compressed streaming format, upload that converted file to the VideoShare web site, and give the user options to distribute that video to other people;

and Shuttle Bar **537** which is used to control the current position of the playback file together with forward button **537** and reverse button **538**, allowing the user to rewind and fast forward through the current video.

The software modules that operate upon the activation of Save and Share button **536** will be covered in a subsequent section in this document in detail.

When the user begins to record a video, the VideoShare Producer **20** software builds a new “Capture Graph” that renders the video stream to both the display window as well as to a temporary .AVI file on the user’s hard drive. The audio/video capturing continues until the user activates the “Stop” button **532** at which point the VideoShare Producer **20** software stops the “Capture Graph”, destroys the DirectShow filter, builds a Direct Show “Playback Graph”, and displays the first frame of the captured video as video preview image **510**. When the user activates the Play button **533** the DirectShow “Playback Graph” is put into running mode, playing back the entire recorded video from beginning to end.

The user can also choose to import a pre-existing video, which in one embodiment can be a file format selected from the AVI, MPEG, or QuickTime file formats, by activating the Import a Video button **535**. The VideoShare Producer **20** software automatically renders the correct DirectShow filter to display an imported video correctly.

Save and Share Process

Once a video segment has been recorded or imported into the user’s computer **16** that is running the VideoShare Producer **20** software, the user can choose to process the video segment with various optional alternatives by activating the Save and Share button **536**. When the Save and Share button **536** is activated, the video segment is archived and distributed automatically. The VideoShare Producer **20** software greatly

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simplifies the entire process by seamlessly automating the following steps that are depicted in FIG. 6A:

- Video file format conversion, as required;
- Compression to a streaming multimedia format at a user-specified bitrate;
- Creating a "Thumbnail" JPEG snapshot of the video file, as an identifier that a user or a viewer can observe in order to assess the content of the video segment;
- Transferring the resultant video and thumbnail files to the VideoShare server computers 62, 62';
- Logging the transactions and managing the user's storage account, including causing the generation of an identification tag that the server computers 62, 62' can employ to retrieve the video segment for viewing; and
- Automating several possible methods of distributing the video to third party recipients, e.g., viewers.

In addition, the user (or sender of the video) is given the opportunity to select an advertisement from one or more advertisements that have been posted on the VideoShare host computer 60 by advertisers who pay for such advertisements. The user or sender can decide, based on the sender's knowledge or opinion about the recipient of the video that the sender is sending, what kind of advertisement is appropriate. The sender can select the advertisement based on one or more criteria. For example, the sender may know an interest of the recipient and can use a criterion based on the recipient's interests, such as the type of product or service that the recipient may be interested in. The sender may know how willing the recipient is to watch an advertisement, and can select an advertisement based on the criterion of how long the advertisement is. The sender can select an advertisement based on a criterion of how much the advertiser is willing to pay the sender to attach the advertiser's advertisement rather than another advertisement. The sender may not have a preference, and can make a selection that leaves the choice of an advertisement up to the VideoShare host computer 60. The VideoShare host computer 60 can select an advertisement on the basis of a random selection from all the advertisements available, or can make the selection based on other criteria, such as the price paid by the advertiser, an agreed frequency of presentation of an advertisement, or other criteria.

FIG. 6A shows a flow diagram 600 of an embodiment of the invention in which the VideoShare Producer 20 software automates a number of steps in connection with uploading a video segment by activation of the Save and Share button 536 described in FIG. 5. As indicated at box 605, a user first obtains and selects a video segment for processing for distribution. The box 605 schematically encapsulates all of the actions that a user takes as described in relation to FIGS. 4 and 5 above. When the user activates the Save and Share button 536 the actions described below that are enclosed by the dotted line 607 are automatically carried out under the control of the VideoShare Producer 20 software.

The VideoShare Producer 20 software subjects the selected video segment to analysis to determine whether the selected video segment is or is not in a file format that is compatible with a streaming video format, as indicated at diamond 610. Formats that are compatible with streaming media formats include formats such as MPEGs and QuickTime videos. If the selected video segment is not compatible with a streaming video format, it is converted to a compatible format, as depicted by the arrow labeled "NO" that points from the diamond 610 to the box 615, "Convert to compatible file format." The conversion process performed by the VideoShare Producer 20 software creates a DirectShow filter graph that decompresses the video file into a temporary, uncompressed AVI file.

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The video segment file in a format that is compatible with streaming video is then temporarily stored in the user's computer 16, for example as a file on the hard drive of computer 16. This storing step is performed if the file was originally in a format compatible with streaming video by following the arrow marked "YES" that points from the diamond 610 to the box 620, "Temporarily store file." Alternatively, the storing step is performed if the file was originally not in a format compatible with streaming video by following the arrow that points from the box 615 to the box 620.

The apparatus and method of the invention can include compression techniques to manage large video segments and image files. Video segments and image files can be compressed by the video sender before being uploaded to the server or can be compressed by the server itself. Compression can be used to improve the efficiency of transmission and to improve the use of storage.

The stored temporary file representing the selected video is then analyzed by the VideoShare Producer 20 software, as represented by diamond 625, "Should file be compressed?" to determine if the temporarily stored file should be compressed. If the software determines that the file should be compressed, as indicated by the arrow labeled "YES" that points from the diamond 625 to the box 630, labeled "Compress file," the file is compressed. The compression involves compressing the video file to a user-specified bitrate, or the bandwidth that is required to view the video without disruption in the transmission. The user can select the desired bitrate via the "Settings Tab" that is described in more detail below.

The file is then converted to a streaming multimedia format file as indicated by the box 635, labeled "Convert file to streaming multimedia format ("SMF") file," as denoted by the arrow pointing from the box 630 to the box 635. If the file is not to be compressed, the flow follows the arrow labeled "NO" pointing from the diamond 625 to the box 635, and the file is then converted to a streaming multimedia format file as schematically represented by the box 635.

The process that is performed by the VideoShare Producer 20 software as denoted by the box 635 involves reading in the video file, frame by frame, and converting the video into a streaming multimedia format. In one embodiment, the VideoShare Producer 20 software uses the Windows Media Streaming Format, known as ASF or WMF, but it is not technologically restricted to this choice. The Windows Media Streaming Format comprises MPEG 4 v3 for the video stream and the Windows Media Audio format for the audio stream. The output of this file is stored as a temporary file on the user's hard drive, in one embodiment.

The flow diagram indicates that the process makes a "thumbnail" of the video file, as represented schematically by the box 640, labeled "Create and temporarily store JPEG "thumbnail" identifier." The VideoShare Producer 20 software produces a JPEG still image that is used as a reference image to the entire video file. It is an identifier of the subject matter or content of the video that a user or a viewer can readily recognize, as compared to an alphanumeric string such as a typical string used to identify a file by its drive, directory (and one or more subdirectories) and filename. Such alphanumeric identifiers are useful, but may be totally uninformative as to the content or subject matter contained in the identified file or video segment. In one embodiment, the VideoShare Producer 20 software creates the "thumbnail" by taking the "middle" image of the entire video file, as measured by the temporal duration of the file. In another embodiment, the selection of an image from which to make the

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"thumbnail" can be left to the discretion of the user. This JPEG file is also stored as a temporary file on the user's hard drive, in one embodiment.

The next part of the process is the upload operation, in which the VideoShare Producer **20** software contacts the host computer **60**, which in one embodiment is the VideoShare Upload/Database Server at the VideoShare hosting facility. This portion of the automated process is denoted by the box **645** labeled "Transfer ("upload") temporarily stored SMF file and JPEG thumbnail identifier to host computer **60**." The VideoShare Producer **20** software notifies the host computer **60** that the user wishes to place his or her video into a repository maintained by the host computer **60**, which in one embodiment can be the VideoShare VideoCenter, which is a repository of all recorded and uploaded videos to date. This upload is performed automatically via a direct TCP/IP socket connection over a specific connection port of the user's computer known as port **80**. The VideoShare Producer **20** software uses a standard communications protocol to perform this transfer to the host computer **60**. In another embodiment, a proprietary protocol can be used, for example if one wants to maintain the security of information contained in the video segment. In another embodiment, the video segment can be encrypted in order to provide enhanced security. Both the compressed video streaming multimedia file and the thumbnail image are uploaded at substantially the same time.

As schematically depicted by box **650**, labeled "Delete temporary file to conserve storage space on user's computer," the VideoShare Producer **20** software removes all of the temporary files that were created in the course of the automated processing described above. This feature provides for the user a convenient, secure, and transparent process, with the benefit that the user's computer storage device(s), for example one or more hard drives, do not become cluttered with unnecessary and obsolete files.

Once the upload has been completed, the VideoShare Producer **20** software and the host computer **60** (for example, the VideoShare Upload/Database Server) will update the user's account to account for the required storage space that the video requires. The necessary logging, creation of an identification tag, and storing of the video and the associated identifier or identifiers is also performed automatically, as schematically depicted by box **655**.

The user can optionally add additional identification and control information about the user, and about how and under what conditions the video is to be made available for distribution, as schematically indicated by box **660**. The process by which some of this information is collected is discussed below with regard to FIG. 8. The user is automatically prompted to provide this information, but has the option to forego making a decision immediately.

The user is given an opportunity to select an advertisement that will be associated with the video, as schematically indicated by box **665**, and as discussed in more detail below.

The transmission of video segment files to viewers is discussed in more detail below, and is represented in FIG. 6 by the box **670** labeled "Transmit file to viewer" which is outside the region **607** as an indication that the transmission of files to viewers is an action beyond the material discussed above in conjunction with the Save and Share button **536** of FIG. 5.

FIG. 6B shows a flow diagram **601** of another embodiment of the invention in which software automates a number of steps in connection with uploading a video segment. Many of the steps already described in connection with FIG. 6A also occur in the embodiment depicted in FIG. 6B, and are numbered in the same manner as in FIG. 6A. In FIG. 6B, there is first an optional step indicated by the box **604** labeled

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"Optional: User authentication with server" in which the User is optionally required to provide identification, such as a user name and password, that authenticates the identity of the user to the server or host computer **60**. The user then obtains and selects a video segment for processing for distribution, as indicated at box **605** that schematically encapsulates all of the actions that a user takes as described in relation to FIGS. 4 and 5 above. When the user activates the Save and Share button **536** the actions described below that are enclosed by the dotted line **608** are automatically carried out under the control of the VideoShare Producer **20** software.

As discussed in relation to FIG. 6A, the VideoShare Producer **20** software subjects the selected video segment to analysis to determine whether the selected video segment is or is not in a file format that is compatible with a streaming video format, as indicated at diamond **610**. If the selected video segment is not compatible with a streaming video format, it is converted to a compatible format, as depicted by the arrow labeled "NO" that points from the diamond **610** to the box **615**, "Convert to compatible file format." The conversion process performed by the VideoShare Producer **20** software creates a DirectShow filter graph that decompresses the video file into a temporary, uncompressed AVI file.

The video segment file in a format that is compatible with streaming video is then temporarily stored in the user's computer **16**, for example as a file on the hard drive of computer **16**. This storing step is performed if the file was originally in a format compatible with streaming video by following the arrow marked "YES" that points from the diamond **610** to the box **620**, "Temporarily store file." Alternatively, the storing step is performed if the file was originally not in a format compatible with streaming video by following the arrow that points from the box **615** to the box **620**.

The stored temporary file representing the selected video is then analyzed by the VideoShare Producer **20** software, and optionally compressed as represented by the box **623** labeled "Optional compression of file." The file is then converted to a streaming multimedia format file as indicated by the box **635**, labeled "Convert file to streaming multimedia format ("SMF") file." Alternatively, a file from the box **620** can be uploaded to the host computer **60** without being converted to a streaming format, and the conversion to a streaming video format can be accomplished at the host computer **60**. The process that is performed by the VideoShare Producer **20** software as denoted by the box **635** involves reading in the video file, frame by frame, and converting the video into a streaming multimedia format.

The flow diagram indicates that the process makes a "thumbnail" of the video file, as represented schematically by the box **640**, labeled "Create and temporarily store JPEG "thumbnail" identifier."

The next part of the process is the upload operation, in which the VideoShare Producer **20** software contacts the host computer **60**, which in one embodiment is the VideoShare Upload/Database Server at the VideoShare hosting facility. This portion of the automated process is denoted by the box **645** labeled "Transfer ("upload") temporarily stored SMF file and JPEG thumbnail identifier to host computer **60**." Both the compressed video streaming multimedia file and the thumbnail image are uploaded at substantially the same time.

As schematically depicted by box **650**, labeled "Delete temporary file to conserve storage space on user's computer," the VideoShare Producer **20** software removes all of the temporary files that were created in the course of the automated processing described above. This feature provides for the user a convenient, secure, and transparent process, with the benefit

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that the user's computer storage device(s), for example one or more hard drives, do not become cluttered with unnecessary and obsolete files.

Once the upload has been completed, the VideoShare Producer 20 software and the host computer 60 (for example, the VideoShare Upload/Database Server) will update the user's account to account for the required storage space that the video requires. The necessary logging, creation of an identification tag, and storing of the video and the associated identifier or identifiers is also performed automatically, as schematically depicted by box 655.

The user can optionally add additional identification and control information about the user, and about how and under what conditions the video is to be made available for distribution, as schematically indicated by box 660. The process by which some of this information is collected is discussed below with regard to FIG. 8. The user is automatically prompted to provide this information, but has the option to forego making a decision immediately.

The user is given an opportunity to select an advertisement that will be associated with the video, as schematically indicated by box 665, and as discussed in more detail below.

The transmission of video segment files to viewers is discussed in more detail below, and is represented in FIG. 6B by the box 670 labeled "Transmit file to viewer" which is outside the region 608 as an indication that the transmission of files to viewers is an action beyond the material discussed above in conjunction with the Save and Share button 536 of FIG. 5.

FIG. 6C shows a flow diagram 602 of an embodiment of the invention in which software automates a number of steps in the formatting of a video segment. In particular, in this embodiment, the video segment that the user wishes to provide in streaming video format is compressed into a plurality of formats, each of which is encoded for optimal display at a different transmission bitrate. There can be a benefit to recording the same video segment in multiple formats. For example, a casual viewer may have only a slow speed modem, such as a 28.8 kilobaud (kB) modem. For such a viewer, the slow transmission speed can make the size of a file a critical feature. Such a user can view a video in real time if it is formatted for a 28.8 kB modem, but not if it is formatted for appreciably higher transmission speeds. Another user, for example, one who has a T1 connection that can handle transmission speeds up to approximately 1.5 megabaud, could successfully receive a version of the same video segment that is formatted for higher transmission speeds, with the possibility of having a better quality image and higher resolution, perhaps with better audio as well. The T1 user could see the version of the video segment intended for 28.8 kB transmission if he or she wanted to, but might prefer to see a video segment that appeared to be more professional in quality. By using a system that can automatically discriminate the transmission speed capabilities of the hardware that the user employs, the embodiment allows each user to view a version of the video segment that is optimally configured for the user's hardware.

In particular, the steps of the method enclosed within the dotted rectangle 609 are automated by software that embodies the present invention. As described above, the user obtains and selects a video segment for processing for distribution, as indicated at box 605 that schematically encapsulates all of the actions that a user takes as described in relation to FIGS. 4 and 5 above. When the user activates the Save and Share button 536 the actions described below that are enclosed by the dotted line 609 are automatically carried out under the control of the VideoShare Producer 20 software.

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As discussed in relation to FIG. 6A, the VideoShare Producer 20 software subjects the selected video segment to analysis to determine whether the selected video segment is or is not in a file format that is compatible with a streaming video format, as indicated at diamond 610. If the selected video segment is not compatible with a streaming video format, it is converted to a compatible format, as depicted by the arrow labeled "NO" that points from the diamond 610 to the box 615, "Convert to compatible file format." The conversion process performed by the VideoShare Producer 20 software creates a DirectShow filter graph that decompresses the video 410 file into a temporary, uncompressed AVI file.

The video segment file in a format that is compatible with streaming video is then temporarily stored in the user's computer 16, for example as a file on the hard drive of computer 16. This storing step is performed if the file was originally in a format compatible with streaming video by following the arrow marked "YES" that points from the diamond 610 to the box 620, "Temporarily store file." Alternatively, the storing 20 step is performed if the file was originally not in a format compatible with streaming video by following the arrow that points from the box 615 to the box 620.

The temporarily stored file is then compressed in multiple streaming multimedia formats, as denoted by the box 633. In the present example, three files will be used to describe the process, but it should be understood that more or fewer than three formats may be created at substantially the same time. The resulting multiple files are denoted by the three boxes 634, 636 and 638 labeled "Bandwidth Target A," "Bandwidth Target B," and "Bandwidth Target C," respectively. Each file is optimally encoded for play as a streaming video segment at a particular transmission rate and bandwidth, such as 28.8 kB, 56 kB, 100 kB, 300 kB, or other transmission rates.

As described above, the method includes a step of creating 35 and temporarily storing a "thumbnail" identifier, as denoted by the box 640. Rather than transmitting one video segment in one SMF with one thumbnail, the embodiment of FIG. 6C transmits all the files 634, 636 and 638 in association with the single thumbnail and any other identifiers that are selected as appropriate. For example, each SMF file can be identified as to its bandwidth. In an alternative embodiment, the system 40 transmits only a single SMF file with its associated identifiers, including the JPEG "thumbnail," and the multiple bandwidth variants of the SMF file are generated at the host computer 60. This embodiment may be advantageous when the user has only a slow speed modem, and would be severely time constrained by having to upload multiple files.

The remaining steps of this embodiment, as denoted by the boxes 650, 655, 660, 665 and 670, correspond substantially to the steps in FIG. 6A represented by the boxes identified with the corresponding numerals. It should be noted that the precise order of some of the steps, for example, the step denoted by the box 655 and the step denoted by the box 650, can be interchanged without a different outcome of the overall process. Other such interchanges in sequence are possible as well, again without a different outcome of the overall process.

FIG. 6D depicts an embodiment of the database 64 of the host computer 60 on which are recorded the three exemplary bandwidth target files 634, 636 and 638 for FIG. 6C. These 60 files are available for delivery over a computer network to a viewer. The files 634, 636 and 638 represent three versions of the same video segment in streaming multimedia format, each suitable for optimal viewing by a user having hardware operating at the transmission rate corresponding to the format 65 of one of the files.

As shown in FIG. 6E, the user (or the viewer) transmits to the host computer 60 a request for a particular video segment,

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denoted by the arrow from the box labeled "USER" to the box **960** labeled "Connection Speed Detector." Host computer **60** can include hardware that can sense the transmission speed of a user computer **16**, or of a computer used by a person desiring to view a video segment. Alternatively, the host computer **60** can inquire of the computer on the network that is connected to the user computer **16** or the computer of a viewer about the speed of connection that is being maintained. When the information is available to the host computer **60**, the host computer **60** can determine which file of the files exemplified by **634**, **636** and **638** is most appropriate to serve to the user or viewer, as denoted by the box **692** labeled "Logic to select and serve SMF file to User." The host computer **60** then transmits the appropriate file to the user, as denoted by the arrow from the box **692** to the box **694** labeled "User receives and views SMF file." Alternatively, the viewer can request the transmission of a file encoded at a specific bitrate.

When the user begins the process described in relation to FIG. 6A, in one embodiment, the "Progress Dialog" screen **700** depicted in FIG. 7 is presented, reflecting the status of the process in real time. The "Progress Dialog" screen **700** notifies the user about the total number of bytes that have to be uploaded to perform the transfer and it also informs the user of the number of bytes and the percentage of the file that have been uploaded in real time.

FIG. 8 depicts a dialog panel **800** presenting several methods with which the user can distribute the uploaded streaming video segment and its associated identifiers to third party recipients. The dialog panel **800** prompts the user as to the possible selections that the user can elect.

In one embodiment, there are five possible methods to distribute the video file:

The user can elect to use an email browser to send an email to one or more people that includes a URL reference to the video located on the VideoShare web site. This also includes the further possibility to send the video player directly embedded inside the email message. This option is elected by activating the button **810**, labeled "Share as a video mail."

The user can elect to share the video as a greeting card, bringing the user to the Video Greeting Card web page at the VideoShare web site. In this case, the user will also select features relating to the greeting card. The user can elect this option by activating the button **820**, labeled "Share as a video greeting card."

The user can elect to send an ICQ URL message, automatically interfacing with ICQ's Instant Messenger software. The user can elect this option by activating the button **830** labeled "Share through ICQ Messaging."

The user can elect to go to the user's VideoCenter page on the VideoShare web site, from which location the video can also be shared or sent to others. The user can elect this option by activating the button **840**, labeled "Take me to my VideoCenter."

The user can elect to place HTML code in the user's clipboard that references the video. This HTML code can be "pasted" into any Web page that supports HTML inserts. The user can elect this option by activating the button **850**, labeled "Put HTML code in my clipboard." In one embodiment, this option allows a user to paste a video into a Web page, for example to demonstrate the use of a product for sale, or to present a personal greeting to visitors to the Web page.

By electing to activate the button **860**, labeled "Nothing, I'll share this video later," the user can postpone making an election regarding the sharing of the uploaded video segment.

The above options are discussed in more detail below.

Sharing the video via email will bring up the user's default email browser, such as Outlook, Netscape Communicator,

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Eudora, etc. This is accomplished through the use of MAPI technologies that allow for document exchange on Win9x/2000 systems. A user who employs Netscape Communicator or Microsoft Outlook will be able to directly embed the Windows Media Player inside the email text body, allowing the recipient to directly play the video from his or her email browser. In one embodiment, this "embedded video mail" feature causes a window such as that depicted in FIG. 9 to appear, for example when the user is using Microsoft Outlook for e-mail service.

As shown in FIG. 9, at the top of the email message, the VideoShare Producer **20** software will display the Windows Media Player **910** with the sender's recorded video pre-loaded. The recipient of this embedded video mail only needs to activate the play button **920** on the Windows Media Player to see the video segment, rather than going to a URL hyperlink. The embodiment includes the conventional dialog boxes for entry of an email address for a recipient (box **902**), a "carbon copy" ("cc") address (box **904**), and a subject (box **906**). In the embodiment shown, instructions are presented below the Windows Media Player **910** for the convenience of the recipient.

The two options "Share as a Video Greeting Card" and "Take me to my VideoCenter" causes the VideoShare Producer **20** software to spawn off a Web browser and automatically jump to one of these two pages on the VideoShare Web site. The user can define the features of a video greeting card, and can direct the card as an e-mail to a viewer. Alternatively, the user can define a recipient list for the video segment as a single item to be viewed, and can send the video to the locations on the list.

The "Share Through ICQ Messaging" button **830** can bring up ICQ's Instant Messenger software, if it is installed on the user's machine, and can initiate a "URL Message" construction automatically. The VideoShare Producer **20** software can automatically fill out the URL that references the playback of the user's video. The recipient of this URL Message can view the video by clicking a mouse on the URL to be taken directly to the VideoShare web site, where the video can be displayed.

The "Put HTML code in my clipboard" button **850** can place a section of HTML code that, when the user pastes this code in a web page, causes the Windows Media Player to automatically instantiate a video playback of the message. This feature enables the user to place this video in any system that supports HTML code, such as personal web pages, online auction sites, online job boards, and the like.

Working Offline and the "Sharing Queue"

The VideoShare Producer **20** software also allows the user to "work offline." Offline means that the VideoShare Producer **20** software will not communicate with the host computer **60** (for example, the VideoShare Upload/Database Server) until the user explicitly uploads one-or-more videos via a "Sharing Queue". This Sharing Queue appears to the user as one of the main tabs in the VideoShare Producer **20** software and acts as a temporary queue for recorded/imported videos. "Work offline" allows the user to not make an Internet connection until he or she is ready to upload more than one video at a time. This mode of operation is useful for modem users who incur considerable expense for extended dial-in times or people who are using laptops and are not always near an Internet connection outlet.

FIG. 10 shows a screen **1000** used to control the status of a video queue. When the user, after recording or importing a video, clicks the "Save and Share" button **536** of FIG. 5 while in "offline mode", the VideoShare Producer **20** software performs the first three steps of the "Save and Share Process," namely, the video file format conversion represented by box

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615 of FIG. 6A, the compression of the video segment to a streaming multimedia format at a user-specified bitrate represented by the box 635 of FIG. 6A, and the creation of a “Thumbnail” JPEG snapshot of the video file represented by the box 640 of FIG. 6A. The resulting output files are stored in a local database for later use in the “Sharing Queue,” which is an operation similar to the temporary storage of files depicted in FIG. 6A. In the middle of FIG. 10 is a dialog box 1010 that displays a list of video segments that are ready to be uploaded to the VideoShare Web site. The small “Preview” window 1020 in the upper left corner of FIG. 10 is a Direct-Show playback graph that allows the user to review the stored video segment that is highlighted in the dialog box 1010. The user can use this window to preview the video segment file by activating the “Preview” button 1030, to delete the video segment file by activating the “Delete” button 1040, and to upload and publish the video by activating the “Save and Share Now” button 1050.

The “Save and Share Now” button 1050 performs the uploading process on each of the queued videos, creating a TCP/IP connection to the VideoShare Upload/Database Server, transferring the file to the VideoShare web site, and updating the user’s VideoShare account, in a manner substantially similar to the method employed by the Save and Share button 536 of FIG. 5 to accomplish the same activities. 15
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FIG. 11 shows a screen 1100 used to control the operational settings of equipment connected to the user’s computer. Another feature of the VideoShare Producer 20 software the ability of the user to change the configuration of the audio, video, and compression devices through the use of the “Settings” tab 1110. Upon activation of the Settings tab 1110, the screen 1100 is active.

The user can select the “bitrate” at which the streaming multimedia files will be compressed by using the set of radio buttons 1120 at the upper left corner of the screen 1100. The default setting is “56 k Modem” which corresponds to a user using a 56 k modem. This default setting is denoted by the 56 k Modem radio button 1120 appearing with a dot, while the remaining radio buttons for bitrate 1120 are blank. In one embodiment, the pie graph 1130 that appears at the upper right corner of screen 1100 indicates the percentage of the user’s VideoShare storage space that is full. In the embodiment shown, the user has filled approximately 3.13% of the available storage capacity available for storing files. Two pull-down menus, “Camera source device” box 1140 and “Audio source device” box 1150, list all of the available video and audio capture sources that the user has available on his or her Win9x/2000 machine. The user can select a source of audio or video by activating the appropriate pull-down menu box and locating a device of his or her choosing. To the right of these pull-down menus, there are two buttons, “Video Settings . . . ” 1160 and “Audio Settings . . . ” 1170 that allow the user to change the properties of the currently selected audio and video device. Such properties include image size, capture compression, lighting conditions, and the like. The screen 1100 also provides to the user the current working directory information in the box 1180 and the current queue directory information in the box 1190, which the user can optionally change by entering new values in either or both boxes 1180 and 1190.

Interactive Advertisement Feature

Advertisers want to know how effective their advertisements are, and what response they are receiving from viewers. In normal commercial advertising in print media and in broadcast media, it is both difficult and expensive to try to gather such information. The interactive advertisement fea-

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ture of the invention allows advertisers 30 to accurately track not only whether the ad video was watched by the viewer 92, but to do so in real time. In addition, there is no need to have individuals contact viewers 92 because systems and methods according to the invention perform the function in an automated manner.

Systems and methods of the invention operate by pausing the ad and/or the video until a specific action is taken by the viewer 92. The action that the viewer 92 can be required to take can include clicking a button, activating a mouse or pointing device, using the mouse or pointing device to activate a link, answering a question, or striking a key (or a similar action) to take place within a time frame.

Once the specific action has been taken, the video or the advertisement will resume playing.

If the action is not taken, the ad can either time out and not play for that viewer 92, remain paused until the viewer 92 either takes the action or closes the ad, or continue playing to its end. By observing the responses of viewers, it is possible to obtain statistics about how many of the ad videos were watched in their entirety and how many timed out or were never fully viewed.

The benefits to advertisers 30 can include obtaining information about which of their advertisements were actually watched by the viewer 92. Advertisers can use such information to determine who is watching their advertisements, and how long those people watch a given advertisement.

While the invention has been particularly shown and described with reference to particular embodiments, it should be understood by those skilled in the art that various changes in form and detail may be made without departing from the spirit and scope of the invention as defined by the appended claims.

What is claimed is:

1. A method of sharing a streaming video and associated advertisement over a network, comprising:
executing, by a first computer:
receiving an advertisement;
storing the advertisement;
receiving a video file;
converting the video file into a streaming video file comprising a streaming video format, independent from receiving a command to perform such conversion;
storing the streaming video file to a storage device;
generating an identification tag identifying the stored streaming video file;
associating the streaming video file with the advertisement;
embedding the identification tag into a web page accessible to a plurality of users on the network;
receiving, via a web page, a request to transmit the streaming video file; and
transmitting, via a web page, the streaming video file and the advertisement to a second computer on the network.
2. The method of claim 1, wherein the identification tag comprises a video frame image selected from the streaming video file, the video frame image representing a subject matter of the streaming video file.
3. The method of claim 1, wherein the identification tag comprises a still image.
4. The method of claim 1, wherein receiving the video file occurs via an upload form residing on a web page.
5. The method of claim 1, wherein the receiving the video file occurs via one of:
an FTP upload;
an HTTP post;

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an electronic mail; or
an instant message.

6. The method of claim **1**, wherein the advertisement is a video.

7. The method of claim **1**, wherein the first computer comprises a plurality of computers.

8. The method of claim **1**, wherein the network comprises one or more of: a cellular communication connection, a wire connection, or a wireless connection.

9. The method of claim **1**, wherein the video file is a streaming video file in streaming video format.

10. The method of claim **1**, further comprising converting the video file into multiple streaming video files comprising multiple streaming video formats.

11. The method of claim **1**, further comprising converting the streaming video file into a second streaming video file comprising a second streaming video format.

12. The method of claim **1**, further comprising receiving a second advertisement.

13. The method of claim **1**, wherein the first computer selectively associates the streaming video file with an advertisement based on pre-determined criteria.

14. A system for sharing a streaming video and associated advertisement over a network, comprising:

a first computer for receiving an advertisement;
a storage device for storing the advertisement;
a second computer for receiving a video file;
a third computer for converting the video file into a streaming video file comprising a streaming video format, independent from receiving a command to perform such conversion;

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a fourth computer for storing the streaming video file to a storage device;

a fifth computer for generating an identification tag identifying the stored streaming video file;

a sixth computer for associating the streaming video file with the advertisement;

a web page accessible to a plurality of users on the network; a seventh computer for embedding the identification tag into the web page accessible to a plurality of users on the network;

an eighth computer for receiving a request to transmit the streaming video file; and

a ninth computer for transmitting, via a web page, the streaming video file and the advertisement to a tenth computer on the network.

15. The system of claim **14**, wherein two or more of the first computer, second computer, third computer, fourth computer, fifth computer, sixth computer, seventh computer, eighth computer and ninth computer are part of the same computer.

16. The system of claim **14**, wherein one or more of the first computer, second computer, third computer, fourth computer, fifth computer, sixth computer, seventh computer, eighth computer and ninth computer comprise a plurality of computers.

17. The system of claim **14**, wherein the network comprises one or more of: a cellular communication connection, a wire connection, or a wireless connection.

* * * * *

Certificate of Filing and Service

I hereby certify that on this 2nd day of November, 2016, I caused this Corrected Opening Brief of Plaintiff-Appellant VideoShare, LLC to be filed electronically with the Clerk of the Court using the CM/ECF System, which will send notice of such filing to the following registered CM/ECF users, and one PDF copy was served via email, upon:

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Upon acceptance by the Clerk of the Court of the electronically filed document, the required number of copies of the Corrected Opening Brief of Plaintiff-Appellant VideoShare, LLC will be hand filed at the Office of the Clerk, United States Court of Appeals for the Federal Circuit in accordance with the Federal Circuit Rules.

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Certificate of Compliance

1. This brief complies with the type-volume limitation of Fed. R. App. P. 28.1(e)(2) or 32(a)(7)(B) because:

[X] this brief contains 13,990 words, excluding the parts of the brief exempted by Fed. R. App. P. 32(a)(7)(B)(iii); or

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November 2, 2016

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